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I

TIME, SPACE AND GRAVITATION

By a characteristic stroke of journalistic enterprise, the London *Times* obtained for its issue of November 28 last, a short and popular description by Dr. Albert Einstein of the new physical theories that are associated with his name. We are glad to reproduce his article in full.

"I respond with pleasure to your Correspondent's request that I should write something for the *Times* on the Theory of Relativity.

After the lamentable breach in the former international relations existing among men of science, it is with joy and gratefulness that I accept this opportunity of communication with English astronomers and physicists. It was in accordance with the high and proud tradition of English science that English scientific men should have given their time and labor, and that English institutions should have provided the material means, to test a theory that had been completed and published in the country of their enemies in the midst of war. Altho investigation of the influence of the solar gravitational field on rays of light is a purely objective matter, I am none the less very glad to express my personal thanks to my English colleagues in this branch of science; for without their aid I should not have obtained proof of the most vital deduction from my theory.

There are several kinds of theory in physics. Most of them are constructive. These attempt to build a picture of complex phenomena out of some relatively simple prop-

osition. The kinetic theory of gases, for instance, attempts to refer to molecular movement the mechanical, thermal, and diffusional properties of gases. When we say that we understand a group of natural phenomena, we mean that we have found a constructive theory which embraces them.

THEORIES OF PRINCIPLE

But in addition to this most weighty group of theories, there is another group consisting of what I call theories of principle. These employ the analytic, not the synthetic method. Their starting-point and foundation are not hypothetical constituents, but empirically observed general properties of phenomena, principles from which mathematical formulae are deduced, of such a kind that they apply to every case which presents itself. Thermodynamics, for instance, starting from the fact that perpetual motion never occurs in ordinary experience, attempts to deduce from this, by analytic processes, a theory which will apply in every case. The merit of constructive theories is their comprehensiveness, adaptability and clarity; that of the theories of principle, their logical perfection and the security of their foundation.

The theory of relativity is a theory of principle. To understand it, the principles on which it rests must be grasped. But before stating these it is necessary to point out that the theory of relativity is like a house with two separate stories, the special relativity theory and the general theory of relativity.

Since the time of the ancient Greeks it has been well known that in describing the motion of a body we must refer to another body. The motion of a railway train is described with reference to the ground, of a planet with reference to the total assemblage of visible fixt stars. In physics the bodies to which motions are spatially referred are termed systems of coordinates. The laws of mechanics of Galileo and Newton can be formulated only by using a system of coordinates.

The state of motion of a system of coordinates can not be chosen arbitrarily if the laws of mechanics are to hold good (it must be free from twisting and from acceleration). The system of coordinates employed in mechanics is called an inertia system. The state of motion of an inertia system, so far as mechanics are concerned, is not restricted by nature to one condition. The condition in the following proposition suffices: a system of coordinates moving in the same direction and at the same rate as a system of inertia is itself a system of inertia. The special relativity theory is therefore the application of the following proposition to any natural process: "Every law of nature which holds good with respect to a coordinate system K must also hold good for any other system K′, provided that K and K′ are in uniform movement of translation.

The second principle on which the special relativity theory rests is that of the constancy of the velocity of light in a vacuum. Light in a vacuum has a definite and constant velocity, independent of the velocity of its source. Physicists owe their confidence in this proposition to the Maxwell-Lorentz theory of electro-dynamics.

The two principles which I have mentioned have received strong experimental confirmation, but do not seem to be logically compatible. The special relativity theory achieved their logical reconcilation by making a change in kinematics, that is to say, in the doctrine of the physical laws of space and time. It became evident that a statement of the coincidence of two events could have a meaning only in connection with a system of coordinates, that the mass of bodies and the rate of movement of clocks must depend on their state of motion with regard to the coordinates.

THE OLDER PHYSICS

But the older physics, including the laws of motion of Galileo and Newton, clashed with the relativistic kinematics that I have indicated. The latter gave origin to certain generalized mathematical conditions with which the laws of nature would have to conform if the two funda

mental principles were compatible. Physics had to be modified. The most notable change was a new law of motion for (very rapidly) moving mass-points, and this soon came to be verified in the case of electrically laden particles. The most important result of the special relativity system concerned the inert mass of a material system. It became evident that the inertia of such a system must depend on its energy-content, so that we were driven to the conception that inert mass was nothing else than latent energy. The doctrine of the conservation of mass lost its independence and became merged in the doctrine of conservation of energy.

The special relativity theory, which was simply a systematic extension of the electrodynamics of Maxwell and Lorentz, had consequences which reached beyond itself. Must the independence of physical laws with regard to a system of coordinates be limited to systems of coordinates in uniform movement of translation with regard to one another? What has nature to do with the coordinate systems that we propose and with their motions? Altho it may be necessary for our descriptions of nature to employ systems of coordinates that we have selected arbitrarily, the choice should not be limited in any way so far as their state of motion is concerned. (General theory of relativity.) The application of this general theory of relativity was found to be in conflict with a well-known experiment, according to which it appeared that the weight and the inertia of a body depended on the same constants (identity of inert and heavy masses). Consider the case of a system of coordinates which is conceived as being in stable rotation relative to a system of inertia in the Newtonian sense. The forces which, relatively to this system, are centrifugal must, in the Newtonian sense, be attributed to inertia. But these centrifugal forces are, like gravitation, proportional to the mass of the bodies. Is it not, then, possible to regard the system of coordinates as at rest, and the centrifugal forces as gravitational? The interpretation seemed obvious, but classical mechanics forbade it.

This slight sketch indicates how a generalized theory of relativity must include the laws of gravitation, and actual pursuit of the conception has justified the hope. But the way was harder than was expected, because it contradicted Euclidian geometry. In other words, the laws according to which material bodies are arranged in space, do not exactly agree with the laws of space prescribed by the Euclidian geometry of solids. This is what is meant by the phrase "a warp in space." The fundamental concepts "straight," "plane," etc., accordingly lose their exact meaning in physics.

In the generalized theory of relativity, the doctrine of space and time, kinematics, is no longer one of the absolute foundations of general physics. The geometrical states of bodies and the rates of clocks depend in the first place on their gravitational fields, which again are produced by the material systems concerned.

Thus, the new theory of gravitation diverges widely from that of Newton with respect to its basal principle. But in practical application the two agree so closely that it has been difficult to find cases in which the actual differences could be subjected to observation. As yet only the following have been suggested:

1. The distortion of the oval orbits of planets round the sun (confirmed in the case of the planet Mercury).

2. The deviation of light-rays in a gravitational field (confirmed by the English Solar Eclipse expedition).

3. The shifting of spectral lines towards the red end of the spectrum in the case of light coming to us from stars of appreciable mass (not yet confirmed).

The great attraction of the theory is its logical consistency. If any deduction from it should prove untenable, it must be given up. A modification of it seems impossible without destruction of the whole.

No one must think that Newton's great creation can be overthrown in any real sense by this or by any other theory. His clear and wide ideas will forever retain their significance

as the foundation on which our modern conceptions of physics have been built.

A final comment. The description of me and my circumstances in the *Times* shows an amusing feat of imagination on the part of the writer. By an application of the theory of relativity to the taste of readers, today in Germany I am called a German man of science, and in England I am represented as a Swiss Jew. If I come to be regarded as a *bête noire*, the descriptions will be reversed, and I shall become a Swiss Jew for the Germans and a German man of science for the English!

ALBERT EINSTEIN

II

THE NEW PSYCHOLOGICAL TESTS: ARE THEY A SUBSTITUTE FOR CONTENT EXAMINATIONS?[1]

The powers that controlled this program have set a title for me against my wishes. When the question was put, "Shall psychological tests be substituted for content examinations for entrance to college?" I replied that I did not know the right answer, and hinted that nobody knew it! I engaged to speak on Psychological Tests and their Uses. It may be suspected that your committee sought to arouse an element of belligerency to make this discussion interesting. I will go as far as scientific conscience permits to aid and abet them, and affirm that an adequate psychological test is better, hour for hour spent or dollar for dollar spent, than the customary content examinations—provided an efficient inspection and rating of the candidate's secondary-school career is used also in both cases.

This is perhaps the real issue; for you are all perhaps convinced that the test of four years' life and work in high school is, when rightly evaluated, the main test of fitness to profit by higher education. At all events, I shall assume in what follows that the authorities responsible for admission have given a careful rating to each candidate in respect to his character and abilities as shown by his life for the four years past. In addition, there is to be either a uniform systematic examination of his scholarship by, say, the Middle States Board, or a systematic examination of his intellect by the same board in cooperation with, say, a committee of the American Psychological Association. Of the two I am willing to defend the latter.

I shall not, however, take much of your time for the defense, but shall spend most of our allotment in helping you

[1] A paper read befor the Association of Colleges and Preparatory Schools of the Middle States and Maryland, Philadelphia, Pa., November 26, 1919.

to decide for yourselves by showing you sample parts of such a systematic examination of the intellect of a high school graduate as is now available, and in regular use at Columbia, Brown, Rutgers and other colleges.

(Blanks representing about half of the Thorndike Intelligence Examination for High School Graduates, Series of Sept., 1919, were distributed. It is impracticable to reproduce these here, since they comprise 20 letter-size pages of printed matter. After the demonstration of the tests and certain discussion of them, which would be uninstructive in the absence of the tests, the discussion was continued as follows:)

What you have seen is a fraction of an examination designed to measure conveniently the intellectual status of American boys who have had a high school education. As inspection of it will show, the examination comprises two examinations of the type of the army Alpha, but extended and made harder, and two examinations of a different sort, including the tests which have been found by Haggerty and Thorndike to be specially indicative of ability to succeed with the work of a college or professional school. Test 7 of Part II is inserted for the particular purpose of doing justice to boys whose intelligence and experience have been directed toward things rather than books.

The examination is adapted to the intelligence level of high school graduates, and will differentiate such into at least twenty grades or degrees of ability. The score is determined by quality of achievement more than by speed, except in so far as the latter is an essential consequence or accompaniment of quality. In many of the tests of which it is composed, the score obtained by the candidate in the time allotted by the examination will be nearly or quite as high as he would obtain if given unlimited time.

The content of the examination will be different at each issue. That is, in June, 1920, one examination will be used; in September, 1920, a different examination; in June, 1921, a still different examination; and so on for at least

thirty issues. A pupil who should be coached on previous issues of the examination would thus have only the advantage due to training in taking a wide variety of mental tests. Coaching will thus be unprofitable except in so far as it is truly educative. Each examination will be carefully standardized so that any one series will be closely equal to any other in difficulty. It can be guaranteed that the average difference in difficulty will not exceed $3^1/_2$ per cent. It will probably be much less than this.

Standard instructions are provided so that any college officer can give the examination, supervise the scoring and interpret the score. The tests themselves and the keys for scoring them will be so arranged that at least 80 per cent of the tests can be scored by any clerk, and the remaining 20 per cent by intelligent college juniors or seniors with a little supervision by some one person of good judgment. If enough clerks are put to work, any number of papers can be scored in a single day. The cost of scoring and recording with adequate checking is inconsiderable. The examination will require two hours and forty minutes of actual work and about 30 minutes more for fore-exercise, instructions and the distribution and collection of papers. Any number of candidates can be examined at one time, one examiner or assistant per forty candidates being required to distribute and collect the materials, announce instructions and the like.

It should be borne in mind that such an examination as this is not a collection of untried tests which psychologists merely think will indicate intelligence and fitness to profit by higher education. Almost every element in it has a long history of experimentation, checking of results and verification. The test with opposites of words, for example, is about twenty years old and has a record of uniformly high correlation with demonstrated intelligence. The test in supplying omitted words in sentences or paragraphs has a still longer history, and also one of undoubted value as evidence of intellect. The use of speed tests with easy tasks is not a caprice of the psychologist, but is justified by

abundant evidence that, in general, the person who can do harder tasks, can do easy tasks more quickly.

The particular team of tests which you have examined has a considerable history of its own. In 1914 the writer was requested by the Carnegie Foundation to prepare a trial set of tests for students entering schools of engineering which might be standardized in respect to form, difficulty, administration and scoring, and which might be more a measure of the pupil's future promise and less a measure of his previous educational advantages than the ordinary entrance examinations. These tests were tried out in the case of freshmen at Cincinnati, Columbia and the Massachusetts Institute of Technology. Bulletin II of the Carnegie Foundation states that "The records of the thirty-four men tested at Columbia have been followed for three years. Five of the seven who stood highest in the test have received general honors, while four of the seven lowest in the test failed in more than half of the work and left school. The top seven all made more than 125 credits in three years, the middle seven averaged 92 credits each in three years, and of the lowest seven the two who did not leave averaged 56 credits in three years."

During the war the Committee on Classification of Personnel in the Army was assigned by the authorities of the Air Service the task of providing an examination for cadets to measure their fitness to do the work of the School of Military Aeronautics—the primary stage on the road to a commission in the Air Service. Among other requirements, it was imperative that the examination should be in so many alternative forms as to make unfair coaching profitless. The tests of the admirable Alpha Examination, devised by the Yerkes Committee of the National Research Council, were adapted to the requirements of the Air Service by extensive additions and by being made more difficult; and four new tests were added. The resulting examinations were stated by the military authorities to be an "almost indispensable aid toward the speedy elimination of what might otherwise have been

doubtful and tedious cases." When Columbia College was beset by some ten thousand applicants for admission to the S. A. T. C., a modification of these Air Service Intelligence Examinations were used, partly because it could be given three time a day and the results known and used within a few hours. The resulting selection of students was satisfactory.

Such an examination is not a perfect instrument for measuring the intellect of a high school graduate. It has many limitations, notably its injustice to a youth who has applied his intellect with great specialization. This examination might well be supplemented by two other questions: "What is the thing you know most about? Show me how much you know about it. What is the thing you can do best? Show me how well you can do it." The interests of pupils of notable specialization must be protected in the case of any general examination, psychological or scholastic.

The exact value of the examination as a means of selecting those fit to profit from a college education can not be stated until four years from now, when the college careers of the men so admitted have been studied. However, it is a conservative judgment that a comprehensive intelligence test (1) is everywhere worth giving as an addition to a scheme of certificating schools, because of its definite measurement of the schools' product and as a protection against egregious, tho innocent, blunders. (2) It is worth giving as an addition to, or alternative to, examinations in the school subjects because it differentiates students who are of first-rate intellect but have been poorly taught and also students who are essentially stupid but have been enabled to pass examinations by the expenditure of much time or money or both. (3) It is worth giving in special instances where the Dean on Admissions Committee feels the obligation to be sure of exceptional promise before waiving certain requirements. Such cases can usually be settled in two minutes if a valid objective intelligence rating is a part of the evidence. The use of an adequate intelligence

examination permits a liberal administration of entrance requirements without danger of injustice, sentimentality or bad effects on the morale of the secondary schools. (4) The investigations of Colvin, Terman, Thorndike and others give solid grounds for the expectation that the correlation between intelligence test and work in college will be closer than that between the ordinary type of entrance examination and work in college.

These facts lead me to think that, hour for hour or dollar for dollar spent, the psychological test for intellect is preferable to the conventional tests for scholarship.

The psychological test gives a somewhat broader and more thoro sampling of the candidate's powers. The difference may be illustrated by the case of a boy who, after graduation from high school, works in an office or shop for a year or so and then goes to college. He is probably better fitted for college, but is less fit to pass the conventional entrance examinations. The conventional test gives, in particular, a weight to knowledge of foreign languages and of mathematics out of proportion to their significance for success in college and professional work.

The psychological test measures the ability and promise of the candidate more, and the amount and quality of his schooling less than the conventional tests for scholarship. Educational advantages doubtless count in the former, and native ability counts in the latter, but, speaking roughly, the one tests primarily the candidate's own reactions to life; the other tests an admixture of these with the skill and assiduity of his teachers, the fiscal status of his parents, and the educational advantages of his community. The psychological test, for example, favors gifted boys with poor advantages; the conventional examination favors rich boys with gifted tutors.

The psychological test acts more positively to select for ability. It advertises the fact that the college will concede to intellect. The conventional examination acts too much negatively, forbidding or at least delaying entrance to those who lack this, that and the other special ability. Even

the short experience at Columbia College seems to prove beyond question that gifted youths whose college education is desirable in their own interest and for the common good will enter college by an intelligence examination who could not enter college by the content examination of the Middle States Board.

The psychological test is more business-like and efficient. The psychological examinations can be given everywhere, at any time, by any trustworthy person, and a report can be made on a thousand cases (or a hundred thousand, for that matter) in forty-eight hours. If a candidate has scarlet fever in June and influenza in September, his admission to college by the conventional examinations may be delayed a year. A candidate makes four trips in four successive years to some examination shrine at fixt dates at great expense of time and money, and still greater expense of worry to himself, his parents and his teachers. He waits weeks or months after each pilgrimage for a report of the will of the god. The deity is so capricious that, even in so definite a subject as algebra, an excellent teacher in an excellent school with long experience in placating the deity, may still find in one year five pupils failing out of ten that he knew were fit to pass.

More important than these matters of protecting the interests of higher education and saving time and money for candidates, is the matter of the effect upon the instruction in secondary schools. A test may be admirable as a selective agency but defective or even injurious as a directive force upon teaching.

It is commonly claimed by high school teachers that they have to sacrifice the real education of their pupils in order to prepare them for the conventional content examinations, and that these examinations are definitely a hindrance in the way of what they think best for culture and discipline. I am not competent to judge this claim. Whether the burden is real or imagined, it would seem to be wise policy to leave them free to do what sound theory and practise direct for secondary education, and then hold them re-

sponsible. So long as they think, whether correctly or incorrectly, that they must sacrifice real values in order to present fitting sacrifices to some examining Moloch, there is friction and lost motion. The psychological test specifically leaves the secondary schools free to teach the school subjects in the way that they think best for pupils and the general welfare.

I have fulfilled my promise to defend the cause entrusted to me. Is there, however, any need for present decision? You do not need to set either above the other; you may simply permit a student to enter if he can either pass the conventional content examinations or demonstrate the possession of intellect such as deserves higher education, and test the results for five or six years. Among those who have made a thoro study of facts, all are, I think, agreed that a well-designed battery of psychological tests deserves a trial on even terms with the traditional entrance examinations—and that is all we ask.

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III

IS GRADE TEACHING A PROFESSION?

This article may possibly seem to the reader to be somewhat pessimistic over present conditions in grade teaching and also over-critical. However, a little honest pessimism helps us keep our feet on the earth when we tend to grow over enthusiastic about the "great things being done in education." But the writer is at bottom not pessimistic about the future and if destructive statements occur, constructive propositions will follow.

The following statements are made upon the basis of purposeful observation of a direct nature as instructor in psychology in a Normal School. Also observations of conditions outside of school have suggested and supplemented those gained from direct school work. The sum total of experiences has led the writer to look at grade teaching and grade teachers of the present in a rather unfavorable light, especially in the smaller towns and rural districts. Is there such a thing, at present, as a grade teaching "profession?" Can we ever have a grade teaching profession in any real, serious sense of the term?

As the lawyer, doctor, or dentist goes up the street of the town he is looked up to by all. Each is a man or woman of high esteem in the town or community. But the grade teacher goes by and such is not the case! Why is this? Why does not the first grade or fifth grade teacher, *e. g.*, receive this homage from the town. Rather, the staid, substantial business men of the town regard her, while an essential part of the educative system, yet as a mere person of no consequence outside of the little classroom. She (once in a while, he) is a simple, harmless character, necessary to society it is true, but of no social, economic, or political importance! The writer believes that this attitude

held by the influential men in public life toward the grade teacher is not without good cause. It certainly constitutes an argument in general against grade teachers being professional in any serious way.

If we would turn to causes and study the present and past situation the above attitude is easily accounted for. In the first place, persons in the grade teaching profession actually do not play any part in the vital life outside of the schoolroom. There are three reasons for this. First, the teacher in the grades has been an inferior product intellectually as compared with those in other professions. Teaching has been the line of least resistance and open to anyone. Low standards and poor pay have not attracted the strong, genius characters into grade teaching. Again, most teachers work during the evening and are so tied down that they have little time to spend out in the general political, economic, or social life. This is true of the real teachers, the others do not count at all. Last of all, the men have practically left the teaching profession.

This last point needs further elaboration. Women make themselves less well known to the community than do men. Men naturally drift to some participation in world or community affairs more than do women. This is partly a matter of inclination and partly a matter of necessity. Also, it must be pointed out, however unfair the fact is, that professional men do not respect a profession made up of women.

It is nothing short of a calamity that men have left grade teaching. Grade teaching is now almost completely monopolized by the female sex. The prospects of getting the men back are poor indeed, especially in the very near future. The writer believes that strong, good women are needed in the education of boys and girls. He also believes that strong, good men are of vital necessity. Especially if we would hold our boys in school must we have strong men teachers. The man can give the boy that companionship and direction no woman can give. The writer knows of a number of cases, and doubtless the reader can multiply

them, where boys and girls have gone thru eight grades of school work and even thru part of high school without having had one male teacher. But regardless of this calamity, the fact that men have left the work has tended to lower that work and the workers in the estimation of the public.

In the second place, we must not forget that the business men and even the successful professional men have never seriously regarded the educator even in higher education. This has been partly due to facts mentioned above and also to conditions to be stated farther on. However, it is also due to the fact that in America our standard of worth has been a money standard. He is worth noticing, he is important who possesses a brown-stone front and a million. Judged by this standard the teacher is an out-and-out failure. The writer has yet to meet the teacher who can rival Carnegie, Morgan, or Rockefeller. What grade teacher can compete with the dentist, lawyer, or doctor, or business man in accumulating money? That this standard still holds good in our country and is applied in the community estimation of individuals goes without saying. Suppose your humble eighth grade teacher of fine ability and years of experience walks into the entertainment of the Four Hundred. Will she be regarded with admiration and respect? No grade teacher would like to run the risk. The teacher is not to blame for this above-mentioned condition. Our narrow, undemocratic, low, material ideals are responsible for it. Happily, these conditions are changing.

But let us spend no time placing the blame for the lowly position held by the teacher upon the public. Let us not condemn the materialism of that public but rather look to our own house and see if it be in good order.

That men have left the grade work and the teacher has led a secluded life, we have mentioned. The fault lies ultimately with the public. However, if we note further we will find other bad conditions. As one looks back over the past years one is literally apalled by two facts. One is that we have sent out untrained teachers. The other,

and worse fact is that these teachers have been mere children. Both conditions are due to the low standards held by the public and the poor salary, one is tempted to say wages, paid. The public has got just what it consented to, namely, inefficiency.

Young girls, from sixteen to twenty have gone out to teach, to take charge of, to guide in the development of young children. The hardest teaching position in our whole educative system is in the grades and yet anybody can teach in the grades. Mere children can teach in the grades. These conditions are not done away with yet by any means. What position in the land could be of more vital importance than that where the guidance and development of children is concerned? Somebody's children have had to suffer and are suffering today. But aside from this bad condition, how can we expect our successful, matured, business men to regard these mere youngsters seriously as professional men and women? It certainly strains our imagination to the breaking point to conceive of them as professional people.

No profession would permit such immature minds into its folds. But there must be added the fact that these teachers have been poorly trained. No real profession would admit such untrained individuals! No teacher is fit to be considered seriously as a teacher who has not had a four-year normal school course or its equivalent. Happily, these conditions are growing better. But if we remedy or change all the conditions mentioned above which go to make the grade teacher but a small figure in the town or city or country, is it really possible to consider grade teaching as a profession? Any true profession involves, first, years of preparation for that work. Second, any profession places emphasis on intellectual processes. Many who would be successful at a trade would never become proficient in a profession. The profession involves a definite field of knowledge to be mastered. It involves a careful technique of application or practise. It involves, not mere rule of thumb procedure, but procedure and

explanation of difficulties on the basis of fundamental underlying scientific principles. Any profession demands high standards of entrance and a certain maturity and ability.

Let us look at the grade teacher and grade teaching situation as they are now and measure them up to the conditions set above. Differing from the high school, or other higher institution teacher, the grade teacher is not a specialist in any field of knowledge. She is a "Jack of all trades and master of none." She must teach thirteen or fourteen common branches. Any one branch in itself, if really mastered, would be a big enough field to keep one busy a lifetime. But perhaps it will be said that in grade teaching "you teach children first and a subject second." Granting all this, the fact remains that this very thing makes us strain a point to think of the grade teacher as a professional woman. However, the writer can not agree with the past prevailing sentiment which has emphasized methods and neglected scholarship! Will a teacher with teaching ability be less a good teacher because she is a specialist? When one specializes they usually specialize in the work that is near and dear to them. This is the first essential to a good teacher! The writer believes firmly in departmental teaching—it will raise the position of the grade teacher and raise the efficiency of the teaching.

One of the poorest (in scholarship) persons the writer has known of in normal school took up a district school and the district considered her one of the best teachers ever in that district! This is either a reflection on the intelligence of the community or else a proof that scholarship, brains, is not necessary in grade teaching! In either case it does not help to make us consider grade teaching as a real profession.

At the present time the normal schools are the training schools for grade teachers. The normal schools are at present receiving and graduating persons (mostly girls) who are very young. Years ago the students were much older and for the most part men. They were seriously

in educational work. Now all is changed. We are preaching deep educational philosophy to these people who have insufficient maturity and background of experience to assimilate it. They are exposed to a wide range of methods which the writer believes often takes little effect. Their understanding of psychology and biology, the most important sciences upon which their work depends, is woefully weak and their ability to apply it is weaker yet. Psychology is still mental philosophy, rather than an experimental science as is chemistry or physics.

Scholarship is a secondary consideration as far as mastery of subject matter is concerned. Methods are all important! The university today emphasizes subject matter and the normal schools emphasize "how to teach it." The "it" is often very weak. Due to the struggle to keep up attendance and due to the many calls for teachers from districts that will take almost anyone, the prospective teachers are little weeded out. The normal schools stress heavily the educative function of the school and pass over lightly the selective duty. But the normal schools are merely giving the public what the public seems to like, or at least consents to.

Another fact that has forcefully struck the writer's attention is this. Many of our normal school graduates are not heart and soul interested in teaching. A lecture on educational methods in which the students did not have to attend would be poorly attended indeed! The speaker would address a vacant room. Is this a professional attitude? Of all things in the curriculum, methods are the most despised by the student. Is this professional spirit? Many girls are sent to be prepared for teaching who are sent almost against their own desires by their parents. Many are indifferent—teaching is a line of least resistance. These things merely indicate what constitutes our grade teaching force. Again, our teachers rove about and many of the women stay a few years in the work and then get married. All this tends to make the so-called grade teaching profession rather questionable as a true profession or at least makes it occupy a pretty low position.

So far our paper has been destructive, emphasizing factors which have been responsible for our grade teachers occupying such a low position in the eyes of the community and stating reasons why we seriously question the advisability of calling grade teaching at present a profession. However, the future for education and the teacher seems brighter. Briefly we would indicate a number of conditions up to which the teacher and public must measure if we are to seriously consider grade teaching as a profession.

First. We must lay more stress on scholarship than we have done in the past. The old view that it does not take any brains to teach in the grades is a pernicious one and the view that a good student will be a better teacher than a poor student must be emphasized.

Second. Communities must pay high salaries and then make stern demands as to qualification on the part of the prospective teacher. The unfits must be weeded out. At present the system is full of misfits, especially in the rural districts.

Third. The normal schools must consider themselves selective as well as educative agencies. It is their duty to weed out the unfit. Normal schools will do this when they are rendered more independent financially by the state so that they will not have to regard every student as necessary to their existence.

Fourth. Specialization, the mastery of a field of investigation, of knowledge, is a necessity to any profession. Departmental teaching will bring the grade teacher more into esteem and help weed out the unfit. Just how this can be realized in the country the writer is not sure. Unless consolidated rural schools can be actualized as the initial step little can be done.

Fifth. It seems almost a necessity to draw an age limit, say twenty years, as a minimum. It is criminal to send out mere children to teach younger children.

Sixth. Men must be coaxed back into grade work. The men will come back only if you pay them the price. Give

them what they can earn in business or the other professions and they will come back.

Seventh. Teachers must take on a more professional attitude, not regard their work as a mere makeshift for something better. The writer can point out many teachers whose library of professional books can all be put in a small table book-rack and whose magazine reading is so little as to be insignificant. Can such persons be considered as professional?

Eighth. Teachers in the grades must mix more, participate more, in the big things of their community. As long as they lead a life of seclusion they can not be looked up to by the active people of the community.

To the extent that teachers approach these conditions they can lay claims to being in a profession of a high order. They are not within cannon shot of these desiderata at present and the writer does not hesitate to reserve the term, profession, for those in higher educational institutions. What changes will come about in the future we do not know. Certainly many obstacles stand in the way of bringing grade teaching up to a real, efficient standard of a true profession.

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Ann Arbor

IV

EDUCATION VERSUS APPRENTICESHIP

As the world now enters on the reconstruction period, we find in our own and other countries the same influences at work undermining education which have grown and gathered strength during the present historical epoch, loosely called the scientific age. The net effect of these influences may perhaps be best described by saying that they have substituted apprenticeship for education. In the great and thickening battle to preserve true education, teachers of the classics are holding the front line trenches. They have been under direct fire longer than those who teach pure and applied science. It has only been an occasional shot that has taken effect among the latter when perchance they have revealed their alliance with the former by presuming to teach something admittedly essential to science but only remotely applicable to the blessed art of getting rich.

From the standpoint of education and apart from contemptible department booming, the science teacher has common cause with the teacher of literature and arts tho the former unfortunately and to his discredit has often appeared to be the arch-enemy of the latter. In taking the false attitude of opposition to the so-called cultural subjects in general and to the classical languages in particular, the teacher of applied science has brought disgrace upon his specialty. Science is really nothing more nor less than the great contribution made by the modern age to culture. It is not sordid in itself but is too often made so by the narrowly utilitarian motives with which it is pursued. The technical student passes judgment on the subjects prescribed by his curriculum and studies or neglects them according to the immediate pecuniary value he deems them to possess. In this instructors too often give him moral

and even active support. The baleful effect of making crude standards of utility the common measure of all values intellectual, social and moral and of keeping the mind centered on the selfish economic purpose of education during the whole period of student life is only too evident in the citizenship of our technical graduates.

The enemies of true education—the education which brings out that supremely real but almost indefinable thing we call personality, giving it speech and utterance—the education which enables a man to join the historic past in vital union with the present, to add his own original contribution, and then to communicate the unique product to his fellows and to posterity—the education which at once secures maximum economic efficiency, in the larger social sense, and in the long run maximum economic efficiency, in the individual sense—the enemies of this education are those who consciously or unconsciously, by word or by deed, support the apprentice ideal of education and aid and abet the atrocious process of economic pre-ripening which is becoming more and more distinctly characteristic of our schools and colleges. This false and sordid education debars the individual from a world which is the common right of all—a world where complete possession does not mean exclusion and where the possession of the same treasure by many only makes the personal possession of each richer and more complete. This world of magical economics is the world of appreciation. Exclusion from this restricts a man's capacity for happiness and turns him from socially beneficial pleasures to the sensuous and wasteful pleasures of luxury. It makes his response to the best elements of his spiritual environment heavy and slow—without that transfiguring touch of emotions and enthusiasm which lights in the souls of others the fire of aspiration. Being unable or too preoccupied with things crudely material to assimilate the living past in which the present has its roots, his mind is cut off from its proper source of nourishment, his personality is stunted, and his opinions outside of his specialized profession hang on the tree of

contemporary thought not like its wholesome fruit but like parasites fed only by the ready-made sap of the parent stem and the malarial vapors of prejudice which infect the air.

Great as is the social loss which this one-sided economic education entails by the incomplete development of personality there is another whose immediate effects are much greater and are visible on every hand. This is the loss of the power of self-expression—the power of one mind to communicate its own thought to other minds. This loss is more immediately serious because even the most exclusively technical education does not destroy personality; it merely leaves it to a wild haphazard growth. The grade of intelligence required to successfully pursue the rigorous specialized discipline of our technical courses is usually associated with personality initially strong. To a relentless selection rather than to their education is to be attributed the fact that our engineers as a class are men of remarkable ability and personality. But you need attend the popular lectures of only a few of them or read their writing to see how very deficient even the ablest of them are in the power to express and communicate thought. There are, indeed, occasional exceptions but they are rare. The personal touch is, of course, deliberately suppressed in technical writing. It is in civil life that the engineer shows his deficiency in power of expression most clearly. The social loss is great. Here is a large group of men whose intellectual endowments fit them to be potent factors in civic as well as professional life, but as a class they can not express thought so as to make their influence effective. A protest against the narrow specialization and neglect of culture which is responsible for this grave deficiency has recently come from a most unexpected source. It is in a letter from the President of the Committee of Ironworks of France to the Minister of Education and is quoted in Bosanquet's *Social and International Ideals*, pages 36 to 39.

The case of the engineer is typical. We are living in an age which, tho all too vociferous, is essentially dumb.

Speech there is but there is little utterance. We have words "full of sound and fury signifying nothing." There is much abusing of the king's English and presumably also of God's patience but each grain of wheat is hidden in a bushel of chaff and like Gratiano's reasons it is often not worth searching for. The student comes from the high school to the college unable to get at the central point of his own thought and much less able to hold the essential in the focus of attention when he speaks or writes. His mind is a jumble of disorganized facts and principles. In the kinetic theory of gases it is necessary to define a state of "perfect disorder." To apply the theory of probability, we must assume that the molecules are moving in an utterly lawless, haphazard way. I doubt whether this ideal state of disorder is ever realized in nature, but I often think that we have only to consider the mental state of the average student to find an exact psychic counterpart of this "elementary chaos."

How has the apprentice ideal accomplished this? What are the more immediate causes of this lack of power to organize and express thought? There are two which far outweigh all others and these two represent exactly the effect of the advantages so far gained by the assailants of the classics. First, classical education has been so discredited in the public mind that it can no longer give those benefits which can only be derived from a discipline carried on continuously and over a period of years. Continuity is essential and length of the period of instruction, the very point which has aroused most criticism, is equally essential. Without the classics secondary education is a structureless, gelatinous mass lacking so much as a semblance of definite form or unity. Mathematics, indeed, is a continuous discipline but alone it can not save the day for the high school course. The second cause is the fact that much of the science which has been substituted for the classics is really beyond the grasp of minds in the high school stage of development. The effort to substantiate the claims of high school science to a real disciplinary value, which science can

only possess in its higher forms, has resulted in an attempt to conceal its disconnected and essentially descriptive character by meretricious, experimental adornment. This kind of experimentation tries to usurp the dignity of research. We used to hear ridiculous boasts of this kind, "Our pupils rediscover in the laboratory the elementary laws of nature." Now even if the vagaries of the so-called inductive method have been abandoned, the spirit of this fallacy still prevails, and to see its utter hollowness we have only to contrast the attitude of a trained scientist toward an experiment with that of a high school student. The former is working by trial and error to find out something he does not know, and his errors teach him as much or more than his successes. He is literally asking a question of nature. The latter is simply adding visual evidence to something which appears self-evident to him or demonstrating some more abstruse law stated ex cathedra in the textbook. The difference is one of essence not degree.

The unifying principle of the physical sciences is the doctrine of energy, but to accomplish any real unification on this basis requires the differential equations of rational mechanics and the calculus of probability. Only the graduate student of the university can achieve this unification. The unifying principle of the biological sciences is the doctrine of evolution, but it is only by the aid of comparative anatomy that its unifying power can be realized. The so-called social sciences—economics, political science, sociology and the like—borrow from the biological sciences their principle of unity in the shape of a metaphorical doctrine of evolution. To build even an insecure foundation for these great ideas requires a rigorous college course in science as a minimum. In a high school course only the pretense of a foundation can be laid. The doctrines must be taught, however, and their unifying power indicated if the facts of science are to be connected by anything more than the formal bond of pedagogical correlation.

Furnished with doctrines beyond its comprehension, the active young mind at once conceives that it has the key to

the universe. However carefully the conscientious teacher may guard against it, a conceit of knowledge without its reality is at once bred. If such a student continues his education after high school he is impatient of details. The great all-embracing principle is enough for him and this attitude is often his undoing. Besides this he undertakes his college science minus the zest of novelty. High school science is thus a hindrance rather than a help to college science. If the boy goes to work after graduating from high school in the scientific course, his mental situation is even more pathetic. He finds that his deductions from the great generalizations he has learned constantly play him false and break down under the mildest criticism when he bases his serious thoughts or conversation on them. He talks in large and vague generalities which do not have even the doubtful merit of glittering. On his mind, hazy before, there settles an obscuring fog. When he tries to express himself, you see a mind stumbling over a fact here and clinging for support to a generality there, completely lost and confounded. If such is the plight of the thoughtful high school student whose mental furniture consists of the material of the high school science course, what must be that of the less reflective? After a few unsuccessful attempts, such a student will not even try to think.

I lay emphasis on the case of the thoughtful student—and this species, rare tho it is, has not as yet become entirely extinct—because the objection may be raised that the real cause of this mental confusion is the fact that the influences which prevail in the public schools are such that no one can there achieve the most rudimentary organization of thought, and that classics or no classics the result would be the same. The objection does not hold. In spite of weekly dances and daily distractions, there will be thinking if the subjects presented require thought within the students power and do not afford that abundant opportunity to get by with a makeshift for thought which so much of the work in science freely offers. Cure all the diseases which afflict public education, and mental confusion and lack of the

power to express thought will remain unless the classics are reinstated in the position which is rightfully theirs.

Another objection to the claims we have made for the classics may be raised by saying that since there is no such thing as mental discipline, the statement to the effect that the classics supply a continuous mental discipline is meaningless. It seems to me that we are justified in retaining this much-cudgeled term unless it can be proved that the mastery of one subject in no way whatsoever facilitates the conquest of an unrelated subject. Now writers on educational psychology admit that by learning well one subject you are rather apt to get an ideal of systematic orderly procedure which will be of great assistance in studying any other subject. Then it is admitted that one subject may really help in an unrelated subject. We believe from observation and personal experience that this help, however it may come, is exceedingly important, and that the mental discipline derived from the classics can be acquired in no other way. A very eminent English scientist, I think it is Karl Pearson, says that his first idea of scientific order and symmetry was derived from the study of Greek grammar.

The translation of Latin and Greek is the exercise par excellence which will teach one to express thought. No other exercise, the translation of modern languages or even theme writing, can compare with it. Translation of the ancient classics is a real creative activity. The remoteness of the thought and language makes it so and the elevation of the thought makes it so. The classics were written at a time when not every one who happened to be seized with the fiendish impulse to shed innocent ink could get before the public. Furthermore, what was written has been subjected to the relentless selection of time. To translate an ancient classic is to re-think the author's thought. Here the student must weigh the words and get an insight into the expressive power and flexibility of his own language. Here if anywhere he will begin to see the difference between adequate and inadequate expression.

I believe that right here the teacher of the classics has an opportunity to develop literary taste and judgment far greater than is afforded to the teacher of English by any subject in the English course. In studying an English classic the student either appreciates the felicities of expression or he does not. You can hardly disfigure the passage for the purpose of letting him see by contrast its perfection. Again in theme writing after grammatical errors are weeded out and some rational sequence given to the thought, what more can be done? The thought is too trivial to permit any elevation of diction. Such elevation would be a defect rather than a merit. But in translating Virgil or Homer many versions can be given and the varying degrees of dignity readily compared. Translation of such authors faithfully done is about as near as we ordinary mortals ever come to the creative activity of composing poetry. Macaulay says of William Pitt, the younger, "His practise was to look over a page or two of a Latin or Greek author, to make himself master of the meaning and then to read the passage straight forward into his own language." Referring to this practise of Pitt's, Lord Rosebery says, "It was to these lessons that he always attributed his ready copiousness of language."

But some one will say that a number and perhaps a large number of our high school students would be entirely unable to stand such a discipline. We can but reply that this is only too true. The idea has crept in and seems to be gaining ground that our educational institutions of all grades are a suitable refuge for the incompetent and defective. These are carried along from stage to stage by a mechanical system of grading which seems to have been conceived with the deliberate purpose of making genius indistinguishable from feeble-mindedness. These weaklings, of course, can not express themselves. We do not claim that the classics are a cure for aphasia. We do claim that the competent should not be deprived of opportunity to develop their powers because the stupid have no powers to develop.

True democracy requires that the capable and incapable alike have equal opportunity to develop all the powers with which nature has endowed them. It does not demand that the incapable shall be put on a fictitious level of equality with the capable nor that we shall employ the process of unnatural selection—selection of the worst—which by the suppression of natural superiorities is the one sure road to social degeneration. This is not democracy, it is bolshevism. The deliberate attempt to avoid any real differentiation of intellects in the public schools results in positive injury to both the able and the stupid. It is trying to hit with one stone two birds whose distance apart is much greater than the greatest dimension of the missile.

Let us summarize in matter and implication the position here outlined. We regard science as an important part but not the whole of education. The process of economic pre-ripening is subversive of anything, worthy of the name of education in the college, and it defeats its own end in the high school. Here science is made the instrument of this process by grossly exaggerating its economic and survival value. This fictitious valuation is based on several facts and fallacies. First, the enormous prestige science has rightfully acquired by enabling man to control his environment. This control, however, has been achieved by applying its principles piecemeal, on the basis of a division of labor so minute that while it is highly desirable for the individual to have an intelligent comprehension of his own work and that of his fellows, this, except in the case of a few directors, is as unnecessary as it is for the private in a great army to understand grand strategy. Second, the fallacy of attributing to high school science values which can only come from a highly specialized, technical course in a university. And third, the tendency which so many people have when the value of high school science is questioned, to unconsciously try to imagine the sorry condition their minds would be in if all the facts and principles stated in elementary textbooks were absolutely unknown to them.

I have heard men argue as if they believed that, if he had not studied the law of gravitation in school, an intelligent boy might climb a tree and then saw off the limb which supported him at a point between himself and the trunk. The fact of the matter is that with the exception of the elementary laws of hygiene no part of science has a survival value in the strict sense of the term. The savage gets along with his environment by instinct and often better than his more sophisticated civilized brother.

We must find time for education. Throw out the wads of educational excelsior from the science course. Reduce the time now given to modern languages. With the time thus saved devoted to the classics, the courses in English languages and literature will not be the sterile things they now are. For any real study of English, even in the high school, the classics are an essential prerequisite. It is also highly probable that with the classical foundation securely laid, as much progress can be made in the modern languages in one year as we now make in two.

The whole position held by the hostile forces ought to be systematically examined. To make such examination thoro in so large a field, division of labor is essential. The public now under the spell of a scientific age, should be enlightened as to the real and deplorable losses which present practises and tendencies produce. The shallow articles attacking classical education which appear from time to time in the public prints should be answered. I think that a movement thus undertaken in the cause of education alone—a movement kept clear of all personal or partisan ends—will receive the hearty approval and warm support of the thoughtful public. I believe that the same idealism which sent millions of our youth against scientific barbarity on the battle fields of Europe may be enlisted in a cause which has always, next to liberty itself, been dear to the hearts of the American people—the cause of true education.

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V

LITERARY STUDY AND PRACTICAL THINKING

To raise the question how far an understanding of literature is an aid to thinking is to provoke the inquiry, "What is thinking?" For the present purpose, a preliminary to sound thinking is that one see things as they are, invested in their natural colors, and divested of color from one's own state or cast of mind. For a perfect impression the mind must act as a film—a film that is clear of blind-spots and of excrescences and creases of personal bias. For serviceable thinking, the mind must first of all be a good camera, a sincere reflector of light and shade. To understand the relationships of the parts of an automobile so that one may conform to the requirements of the mechanism for service to himself and others, one must first see the parts as they are. Serviceable thinking, in a similar way, is based on an accurate visualization of the facts and truths of nature and of human nature. With them it squares itself, and with them it maintains continuously a definite and intimate relationship. When thinking ignores fundamental facts and truths and undertakes to create relationships it is in error; it is sound when it confines itself to their discovery. It does not consist in building up assumptions, but in putting them out of the way. It does not proceed by canon, code, or edict, but conforms to natural law. It has no hauteur. It is compliant. It is docile. The best thinking is instinct with humility. It is not entirely intellectual. It is moral as well. It partakes of the nature of interpretation as well as of reasoning. It would seem to be an application of the whole understanding, a rallying of all the elements of consciousness to a degree of receptivity that registers a distinct and accurate impression. Constructive thinking is built on fidelity to fact and clear sensitiveness to truth.

Shakespeare, for instance, is proverbial for his fidelity to fact and clear sensitiveness to truth. He holds the mirror up to nature with singular fidelity. In due perspective, which lends just proportion, he is able "to see life steadily and see it whole." He is a study in mental poise. He provokes the inference that a complete union of healthy physical, mental and moral being in a ripe personality, which reacts normally and wholesomely if not always pleasurably, forms something like a basis for sound thinking. Here is the rotundity of completeness and normality of mental and physical adjustment. Here is the harmony of life's response to soil and sunlight, drought and flood, whether the life be sentient or unconscious. Here is the prophecy of the ultimate adaptation of thought to the universe, the subordination of will to natural law, the adjustment of growth to environment. Here is Shakespeare's contribution to the groundwork of practical thinking.

Such rotundity have Shakespeare's female characters almost without exception. Instinctive orientation is scarcely better illustrated in the swan's moving majestically out upon the water from the first oarstroke of a webbed foot. This, Shakespeare seems to have typified consciously or unconsciously in his heroines by the positive method of representation, and the lack of it in his heroes by the negative device of elimination. On the other hand, he has paid womankind the compliment of attributing to it a natural and wholesome outlook upon life, whence all its relations are in harmony. Paragons all—with few exceptions like that of Goneril or of Lady Macbeth—"they are all *genera* intensively individualized." The dutifulness of Cordelia; the honor of Imogen; the tender delicacy of Viola; the unsuspecting trustfulness of Desdemona; the unfeigned majesty of Hermione—all blent in one being, would presumably represent something like Shakespeare's conception of a woman. On the other hand, the animalism of Falstaff; the greed of Shylock; the amibition of Macbeth; the jealous assumption of Othello; the stoical obsession of

Brutus; or the vacillation of Hamlet between his ideals and their execution—this seems the one moral blemish, the blot on the film, which prevents a clear impression of things as they are. Here clear thinking is at an end. The removal of these several defects, and their like, restores the moral poise and mental rotundity. As tho dissatisfied, however, with his accomplishment in the matter of clearing up the status of sound thinking, Shakespeare creates the characters of Prospero and Miranda. He places them unsophisticated in a world of untainted idealism, where mind-distorting selfishness has not stalked in to disturb the "progress of solemn thought and moral wisdom." There unencumbered grows the crowning requisite of vessels fit to reflect the truths of life with fidelity—in Miranda a virgin openness of mind; in Prospero a profundity of natural wisdom which seems magical and mysterious. Altho not a conscious teacher in any sense, Shakespeare is nevertheless "a focus where a number of vital points unite in their purest energy." If he is a dramatic thinker primarily, he is admitted to be a practical thinker as well.

Thus sound thinking seems well exprest in orientation. It is like the process of determining one's whereabouts and his relation to the place. Beyond that, if one could ever get so far, one becomes a part of the harmony of nature, which is in him and of which he is a part, functions with it, and reflects its wisdom. He is master of the technique of life. A man's wisdom is his reflection of nature's harmony. The music in the soul of Paderewski has become intuitive action now that he has worked out the technique. When, and if, the astronomer has mastered the mechanics of the universe, his adaptation is complete. He is of a piece with it and reflects it intuitively. Mankind seems the one part of nature that wills to struggle against it. Life would cease to be a mystery if one were in rapport with the fundamental spirit of it. Its tragedies are but the discords of our blundering with its technique. They are the troubles of orientation.

The literary masters serve us here. They are specialists

in life's technique; they sound the key-note of life's orchestra. Their books are great tuning-forks to elicit the pitch of one's nature. They interpret one to himself, smooth over the difficulties of orientation. Unlike the harp of a thousand strings, one can not accommodate himself to every vibration. He reacts harmoniously only on the rhythm which accords with the fibre of his being, encounter as he may the whole gamut of tones, half-tones, and over-tones. The masters give him the pitch. When he realizes the mind that is in him, the music of his soul swells out in full volume. He has acquired an avenue of self-expression thru which he applies himself to the world's work with accumulative effect. Samuel Johnson, for instance, traced the beginning of his life-long education in thinking and expression to a copy of Petrarch; Robert Browning, to a copy of Shelley's poems; John Addington Symonds, to the *Phaedrus* and the *Symposium;* Nathaniel Hawthorne, to the *Faerie Queene;* Philip Gilbert Hamerton, to the *Lady of the Lake;* and W. T. Steed, to *Hamlet* and *Othello.*

"The poet is the great thinker," says Arlo Bates. That is because he is the exponent of the instinctive sense of human weal, by the measure of which adequate thinking proceeds. More than any other he is the interpreter of the inner sense of the people, the common soul of the time. History recognizes poetry as the focus of the sincere reflections of the rank and file, the body of democracy, the repository of sentiment which is not with impunity overlooked in policies of state. The best poetry is an expression of the deeper issues which governments and institutions are intended to serve. The product of incisive imagination and agile understanding, it interprets the human spirit, makes it tangible, and gives it recognition. Paradoxical as it may seem, the poet rather than the legislator is the maker of the state. The lawmaker, by the exigencies of political life, is likely to escape something of the instinct of democracy, unless he be a Mazzini, a Burke, a Lincoln, or a Gladstone. The best thought is not originated in the

legislature, but is openly manifested there by its effects, so far as it gets a hearing in a tournament of conflicting motives. That is a place more or less of compromise, where interests are played off against the common good. Wisdom is apt to be slighted somewhat at the bar of contention and debate. Vision is somehow at a disadvantage in a settlement that is determined by the mace. The struggle of interests obscures discernment, and the temper of expediency is not useful for purposes of interpretation. Government wants initiative. The poet speaks first. To his lead we kindle.

Much as we are inclined to discredit the utterances of poetry we have to recognize the effectiveness of its message in history. It is acknowledged that the Greek state was largely a tribute to the *Odyssey* of Homer. The heroic figure of Ulysses was for the Greek the mould of genius: his wisdom was the counsel of Greek statemen and his character the pillar of Greek institutions. "The *Odyssey*," says Professor C. Alphonso Smith, "is but the Greek history in prophecy." The relation of Dante to Italy is the same. He is the spiritual father of the generations of Italians who have succeeded him. "They talk Dante, write Dante, and think and dream Dante to an extent that would be ridiculous but that he deserves it," wrote Byron in one of his letters from Italy. The *Divine Comedy*, even more than Mazzini, is the humanizing and cementing force that has transformed the geography of local sovereignties and dialects into a unified Italy with common ideals. Similarly, out of contending baronies and petty self-interests England was made a homogeneous people in a large measure by the democratizing energy of the Canterbury Tales. In fact the relations of Homer and Dante and Chaucer to the political systems which they inspired were something like that of a keystone to an arch: they supported the whole structure. At a time more advanced Charles I was the leader of the forces that would civilize England by masques and court entertainments, by fine pictures, by music, by a splendid ritual and church ornaments. Milton voiced the

deeper sympathies of the time, and the temper of the Puritan revolt. The Cavalier régime toppled and fell. It has been said that every great poet remakes the world. The accents of Browning's Pippa fall upon the ears of the four most perplexed ones in Asolo at a tidal moment when their better natures are alert, and turn their impulses into conduct. The voice of the poet crystallizes the vague intuitions of the aspiring world into concrete motives for action.

The great prose masters are likewise the interpreters of life, and therefore the leaders of thought. Like the poets they voice the sense of mankind in terms of central ideas. Their sense is the sense of the common mind so well exprest as to become a concrete working principle. Emerson says of a copy of Montaigne which he found in his father's library: "It seemed to me as if I had myself written the book, in some former life, so sincerely it spoke to my thought and experience." Ben Lindsey is a natural leader of boys because, understanding and appreciating the best elements of boy nature, he interprets them to themselves. Woodrow Wilson is a leader of world thought because he perceives and expresses the fundamental sense of the human mind as no other man before the public is able to do. His deliverances take hold of us because they are the concrete wording of our subconscious thought. In the same way the prose masters grip the mind with things central and fundamental. Obeying the law of sound thinking, they have leadership.

A sympathetic reading of the essays of Montaigne or Emerson lights up our more or less dark minds as tho an electric light had been switched on to show us the furniture there. They tell us nothing that is new; they only make vivid the subconscious knowledge we already have. Montaigne is an incentive to clear thinking because he helps us to see things as they are. He was intellectually honest; he disliked pretense. "We must rend the masques from things as well as men," he says. In the words of Henry W. Sedgwick: "He prowls about the beliefs, the

opinions and usages of men, and taking up a thought lifts from it one by one the envelopes of custom, of prejudice, of time, of place." Emerson, like Montaigne, saw that because a man chooses and acts in his own soul he has taken himself out of the order of nature and become a stupendous antagonism; handles the instrument of thought, as a boy a pistol, much to the detriment of himself and others. And so Emerson became an apprentice. A testimonial to his adaptation is that his thought coincides with and anticipates the most progressive thinking of our time. He anticipated many of our most practical undertakings in all their principles. "I discovered in Emerson's poems and essays," says Dr. Charles W. Eliot, "all the fundamental motives and principles of my own hourly struggle against educational routine and tradition."

So with other great essayists. We mention a work each of only three: *Sartor Resartus* is the abstruse title of a misunderstood book. Either the title, or the book, or both together, succeeded in materially reducing the popularity of Fraser's magazine, in which it was published serially. It rends the masque from things, and challenges the validity of thought that is not grounded in fundamentals. The keynote allures the inquiring mind: "How we clutch at shadows as tho they were substances; and sleep deepest while fancying ourselves most awake." *The Seven Lamps of Architecture* provokes the assumption that it is a treatise for architects, but turns out to be the light which architecture in seven of its phases sheds upon sound thinking. It is a specimen of thought-building as distinguished from castle-building, a kind of St. Mark's in the architecture of thought. *Conciliation* by Edmund Burke is even more splendid. In point of mental penetration and spiritual discernment it is significant. In it the vision of Burke has become classic. It is the common verdict that to his clear thinking is due the coherence of the British empire. England, Canada, India, Australia, New Zealand and South Africa for four years mingled in the trenches in defense of the principles here outlined. Burke's *Conciliation*, like a great

picture, accumulates effect as it accumulates age. The dust of the centuries into which the receding years dissolve the ephemera of error, seems as a foil to accentuate the immortality of its truth. It seems the burden of the masters that the error of personal expediency, growing out of egotism and the common acceptance of custom for thought, is easily a prey to the disillusionment of age, and accumulates in ominous windrows of decay under the bleaching effect of time.

As thought-inspiring prose the *Pentateuch* has not been surpast. It is a revelation of mental sincerity and unaffected directness. There is the *Book of Job*, from which no reader who has felt the appeal of Ulysses or Samson turns without some loss of respect for a frail and fickle mind. The wisdom of *Ecclesiastes* has ever been the counsel of the thoughtful in world values. In the Prophecies we have the ripened fruits of understanding; the application of the best thought to the common details of life. And the Gospels have challenged the thought of the world for some thousand years to the extent that their temper has levened the whole of literature. These are prose masterpieces which have had more than a temporary, geographic, or ethnic relation to thought. They have been the Great Stone Face in the consciousness of men till they have found tangible expression in all their institutions of civilization.

For flexibility of mind there is scarcely anything better than a thoughtful study of great fiction. The great drama no less. The reactions of men and women on life are there seen openly to be predetermined by a method of thinking. One discerns there that sound motives are conditioned upon a conception of life in its entirety rather than in its detachments. Knowledge there is opportunity and power for the thinker. The masters have incarnated each phase of thought in an immortal personality to be the subject of our intimate and life-long contemplation. Each personality represents a persistent point of view as it affects the stature of a man in his maturity. Uriah Heap is the evolution of hyprocrisy; Jeanie Deans, of sincerity. Com-

panionship with Don Quixote, whose evasion of the truth of life betrayed his otherwise integral mind, reveals a disposition to mould the world into accordance with personal anticipation. Acquaintance with Leatherstocking reveals personal courage to square with the facts of life. To a fuller extent the same is true of Robinson Crusoe. Mental adjustment to a strange world he achieves with grace. Of thinking for oneself he is the prototype. In him the term orientation loses its mystery. He might pose to a sculptor for the image of adaptation. One might say that his mental rotundity is complete in the sum of the spherical polygons represented by the other characters of fiction.

These merely indicate the limitless incitement in a studio of literary creations. Better known to us than most of the great figures in history, they enter more vitally into our thinking. As an evolution of a way of thinking they are more concrete and recognizable than our own intimate, personal acquaintances. We know more of their inner motives than of our own. Without their companionship we have touched life too narrowly. Contact with them lifts our thinking from its provinciality and gives it balance. Their society gives the effect of a traveled mind to a stay-at-home intelligence which rarely puts to sea. "Few living friends," said Robert Louis Stevenson, "have had upon me an influence so strong for good as Hamlet or Rosalind."

A character in fiction, or in the drama, is commonly involved in circumstances to which it sustains relations more vivid to us than our own relation to life. For instance, the son of a poor forester, early an orphan, reared by a married sister, at seventeen saw seven little children clinging to the hand of his sister's husband who was lying dead on a heap of straw. For ten years he toiled as brother, husband and father, receiving ten sous a day for seventeen hours of work. Failing of employment he was distrest by the hunger of the children. He saw some bread in a baker's window, suddenly struck the glass with his fist, took out a loaf and carried it home. A bleeding hand and his own

confession convicted him of burglary, for which he was condemned to the galleys for five years.

The situation is interpreted by a skilful portrayal of its consequences, in a great work of fiction. From straitened circumstance Jean Valjean carried a handicap, not only in the way of access to what life offered him but also in the way of his contribution to it. His own touch with it was too narrow, his experience too personal, and his welfare too immediate and absorbing to enable him to see the bearings of the society to which his experience was related. In the novel the c ash and play of ideas and character, each representing 'ts constituency of thought, reveals something of the relation of experience to a mode of life, and therefore to prevailing opinion. Thus as the knight errant of Jean Valjean, Victor Hugo interprets a state of society in Paris so as to exhibit the repression of the city's best thought in the bud, by the tyranny of the so-called thinking classes over the children of the unfortunate. He clears away ambiguities and leaves recognizable the right of opportunity, the widsom of its equal distribution, and the criminality of the social order that obstructs it or takes it away. He bares to the public view the loss of moral and intellectual stamina thru the withering of genius in cramped circumstances; the loss not only of the personality that has been suppress but also of the freedom of thought itself, freedom to square with a great reality of human nature—the instinct of sympathy. It is as tho he had put his finger on a misconception that had made history a tragedy and cleared the way for the image of a man who has escaped the slavery of opinion in his realization of a fundamental reality, has planted his thought indomitably upon it, and kept it there till the world has come around to it.

These are a few of the books which the leaders of thought recognize and in which they find their own minds. They are of the substantial order of literature which has the world's best thinkers behind it as its explanation and the world's best interests before it as its motive. They represent the living, perspiring energy which is liberated in

the quest of mental and spiritual adaptation. They are the vitality of pulsating life in which one participates as tho his welfare were involved in every page. They interpret one to himself. As an expression of the human mind they can never be technical, or narrow, or superficial. On the contrary they are comprehensive, logical and profound. The pulse that quickens to the genuine thought of the literary masters throbs out the laborious struggle to intellectual freedom. Intellectual freedom, as used here, comprehends something like freedom from bias, predilection, tradition, custom, convention, or ideas of personal pleasure and advantage, freedom from the encumbrances to a ready response to truth and fact, freedom to pursue the intimations and evidences of universal good.

One finds that a man's worth does not consist in his being statuesque but is manifested in the gratitude he awakens by his thoughtfulness of men. Similarly, literature earns universal gratitude, not by its harmony of accent, but as an interpretation of the human spirit. The worth of literature lies in its record of mental evolution. Its vitality is its obedience to the moving forces of life. It is virile in proportion as it helps man to express the truth that is in him, as a vine expresses itself in clusters of grapes. It lives by its service to man's instinct to disencumber himself of the handicap of convention and opinion, and of his own predilection and bias. It is not contracted in its appeal; it is not bread for leisure and vitriol for labor. The literature that purges its pages of all peasants and resolves to be wise only with regard to courtiers and kings, thereby writes upon its face the seal of oblivion, unless, perchance, it serves as a looking glass to an unserviceable and obsolete order of life. The genius of Pope and Dryden is limited mainly to their skill with language and literary forms; that of Milton and Shakespeare penetrates to the human equation. The works of Sydney Smith carry allusions to the vulgar herd. In *Uncle Tom's Cabin* a slave steps forth as a candidate for hero-worship. While Fielding and Smollet may be tinctured with scorn for the masses,

Dickens is the almoner of the Oliver Twists; George Eliot, of the Tom Tullivers; and Thomas Hardy, of the Marty Souths and the Tess of the D'Urbervilles. The literary master owes his recognition to his interpretation of ultimate good in human experience. Our textbooks in ethics and logic and philosophy are too abstract to bring home to us the fundamentals of practical thinking. The great poems and novels and essays give insight into the problems that engage men's minds. They appeal to us as books for study because in them fundamental principles are made flesh and embodied in living persons.

As a record of mental evolution literature has not uttered the last word of human wisdom or the whole truth concerning ourselves. Only fundamental and central ideas have been perceived beyond the envelope of personal interest and expediency, which operate to encumber mental freedom and narrow the horizon of thought. So immediate and practical seem the needs of subsistence, upon which the usual operations of the mind are centered, that the intervals when the vision is clear are likely to seem moments of delusion. Things are commonly seen in accordance with anticipation. Disillusionment comes when they are seen as they are. Disencumbered thinking pierces the envelope of illusion and dares to penetrate the realm of truth unaccompanied and unafraid. It recognizes the legitimacy of the spiritual undercurrent in human nature, which is contemplated often with trepidation as something illusory. It fathoms doubt, which intimidates the mind, in quest of the faith which makes it firm. The venture beyond the limits of conventional reflection, and into the field of mental self reliance marks the breaking of home ties, which bind one to a condition. Thinking can not be subordinate to what is written, or superior to what is true. As one finds his own mind in literature he recognizes his equality with the best that has been thought, and himself as a part of the stream of life upon which he dares to put an interpretation consonant with the vision that is in him.

But thinking is cumbersome and unmanageable till

language ceases to be clumsy and difficult to manipulate. Approach towards clearness of mind is commensurate with progress in clear statement. Altho aptitude in expression is induced by the insistence of the message, yet the incisiveness of the message is derived from the logicalness of the language. Language as language is barren. Vital composition is something more than juggling with words. It involves the building of conceptions and the marshaling of ideas, wherein language functions normally and manifests its vitality. There would seem to be something illogical in the idea that halting expression can be at one with veteran precision of mind. The bane of a course in composition would be removed if it were actuated or vitalized by the insistence of ideas. Language in its final analysis becomes the logic of thought, and so is integral with thinking and progresses with it in aptitude and efficiency. Appreciation of truth begins with respect for accuracy, even in language. One has the measure of his thinking stature in the aptitude and precision of his utterances, as well as in the measure of truth which he utters.

The best aid to clear thinking is a zest for the truth, which is at the basis of an appreciation of literature. The more insistent the truth the clearer the expression. Men phrase their thoughts and point their language with high sincerity and moral earnestness. In the recent war of deliverance "they fashion a series of heroic actions unified, composed, coordinated, full of soul, dedicated to the highest powers." If the great war was a cathedral, as the Frenchman, Maurice Barrès, has put it, then likewise is the appropriate expression of any great truth. Such is a classic. The diction, phraseology and language structure of a literary classic is the outward machinery of clear thinking, and is a stimulus to thought, beside which a treatise on thinking or on language lags in comparison. In it is the open and recognizable face of moral earnestness. Burke's speech on conciliation is a quest of truth so earnest that the encumbrances which commonly attend it, like the enemies of determined right-

eousness, have fallen away. "I did not think it safe or manly," he says, "to have fresh opinions to seek upon every fresh mail which should arrive from America." His determination to uncover the truth that holds for all time carried with it the attendant lucidity of expression which speaks equally with the thought. The sincerity of his language, which puts casuistry to rout, seems more eloquent than his conception that "genuine simplicity of heart is a healing and cementing principle." The insistence of the truth in Burke's utterances makes circumlocution and ambiguity ridiculous, clears his deliverances of awkwardness, his thought of incoherence, and leaves a structure of language like the architecture of a cathedral, clear-cut and pointed in its moral effect.

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VI

SUPERVISION OF INSTRUCTION

The times of school visits, perhaps it should be written "of school visitation," by the supervisor of instruction, is in many school systems and for some teachers in all school systems, a day or time of extra tension and strain. "The supervisor may not be pleased or may find something to criticise," thinks the teacher, and therefore dreads the supervisor's coming or the interview after the visit. Many teachers, on the other hand, feel that the days of visit by the supervisor are among the best of the week or month. They look forward pleasantly and eagerly to the visit. If they chance to see the supervisor they are sure to inquire, "Are you coming to my room soon again?" They look forward to the visits with expectations of delight and profit. Will they not be given help and advice about matters that have puzzled them? Will they not receive commendation for new features in their methods? Will not the supervisor clear up certain cloudy problems? Will not the supervisor have suggestions and recommendations for the management of hard cases of discipline? Will not the supervisor bring new ideas, new hope, fresh courage for the daily round of difficulties? How may the supervisor's visits be made an unfailing satisfaction and pleasure for every teacher?

All teachers who regard the supervisor's visits a pleasure and a source of strength could easily write a prescription to fulfil the conditions, and all the prescriptions would have common suggestions. Among the suggestions given by a group of experienced teachers to a group of beginning teachers, the following were found. Other suggestions are possible, and a few of the recipes had none of these suggestions. Therefore, no claim of exclusiveness can be made

for the suggestions here presented. To claim that would be folly. Instead the suggestions are past along in the hope that since they have already helped some young and beginning teachers, they now find a larger usefulness, and entirely in the spirit of freely and gladly giving to others what has been found useful and helpful to some.

The teacher ought to be glad when the supervisor comes. "Ought" is used advisedly and intentionally. The school system is under obligation to the present generation to fit the new and oncoming generation most directly and most economically for its duties and responsibilities in the sphere of adult manhood and womanhood. Hence, instruction must get to its goal at the least expenditure of time and money. In school systems where a large percentage of the teachers is "inexperienced" each year, and where another large percentage is also "untrained" each year, the only reasonable means of securing the necessary economy and directness is thru the provision of careful supervision of the instruction. The supervisor is a fixt fact for some coming generations; the school inspector can come only when the untrained and inexperienced teacher disappears. Since we must have supervision (guidance) of instruction, therefore, it becomes a duty of teachers to be glad for it, and the "ought" should be that of a firm and unfaltering resolve, stayed by the expectation and belief that supervision will lead to better work in instruction. A steady, fixt and positive determination to get good out of the supervisor's visits, to learn from them and to profit by them, is a first necessity to the actual and positive enjoyment of them. "I will overcome my foolish fear and nervousness and just be myself," must be resolved and the resolution lived up to. It may waver, rise and fall and disappear when the supervisor is actually in the room, but it will also rearise and stand out if the teacher is getting ready all the time instead of just about the time when the supervisor is expected to come. For instance, the teacher who propounds a teaching perplexity to a supervisor, and who receives an appropriate suggestion from the supervisor, will not easily

think nor believe that the supervisor's visits are to be dreaded rather than enjoyed.

Besides this moral and ethical "set" of mind to enjoy the supervisor's visit, the teacher should be sure to make use of the following suggestions. First, in a note book kept for the purpose be sure to record difficulties as they arise in the instruction. Any hints that her own knowledge or experience suggest should also be noted. During the supervisor's visit, bring out the note book and refer the difficulties to him with a request for advice and help. Your careful note taking and your serious effort to help yourself, will impress upon him that you are both careful, studious and seriously in earnest. That impression is worth very much to the teacher. Also, after you have noted the difficulties and your best thought at the time, review your notes, and you will find your own mind dwelling upon the matter and drawing upon your experience, your observation and your reading for a further or for a more complete reply. This reaction upon your own thinking is worth more than the supervisor's visit, even if he does give a different suggestion. The teacher is developing strength and is laying up resources of helpfulness. Each of these is an excellent form of teacher self-culture and self-training. Second, after the supervisor makes suggestions in response to your request for help, adopt and adapt the suggestions to your school, classes and circumstances. To dismiss the suggestions without trial shows the teacher to be a mere flatterer, and not a student in search of better ways of teaching. That is what the supervisor will unavoidably think if the recommendations asked for and given in good faith are not observed in the teacher's subsequent practise. As mere policy, obsequiousness it will perhaps be thought, it is wise to show respect for his recommendations. The young teacher working under the guidance of a wise supervisor will nearly always find that the practise thus begun for mere policy will quickly establish itself firmly as a clearly grasped and intelligently applied principle. The supervisor's larger knowledge and longer professional

vision will stand justified and confirmed by the outcome. The teacher who was but a short distance from scoffing will be converted into a believer in the wisdom and worth of the supervisor's recommendation. The mechanical and unsympathetic supervisor will be merely the exception which proves the rule. Third, tell the supervisor about difficulties which you think you have mastered for yourself and invite his judgment on your solution. This is not vain glory. This is the teacher's right and privilege. Since he can not see all of any teacher's work, and since the teacher is laying bare some of her weaknesses by her work or by her requests for help, therefore the teacher not only has the moral right but should feel under the necessity to tell some of her successes, entirely as a way of securing a fair and just judgment of her work, and as an offset to the admitted faults or weaknesses. The careful record of such instances, the modest and simple statement of facts, will stamp the teacher as careful, methodical, studious and desirous to improve in her work. To be thus regarded by a supervisor is to be held in not only high but in fine esteem.

Follow your regular program or plan of work when the supervisor comes. If he wishes to see any special class or branch taught, request will be made. Be it ever so artfully done, suggestion of a change from regular work impresses the supervisor with the teacher's unwillingness, perhaps unreadiness, to go on with the regular program. If unreadiness, than unpreparedness, and that is a cardinal sin. No form of flattery of him as a fine speech maker is ever subtle enough to deceive the experienced supervisor. He was once a teacher under supervision. That little subterfuge is quite transparent to him. The teacher who believes and who acts as if she believed that the class will get more if she teaches it than if he taught it, is taking a fine professional attitude. The teacher who is sure that the children will be greatly profited by the supervisor's speech is not fooling him even if she is flattering him. The teacher who omits the regular grammar lesson and who calls out

her Third Reader Class instead, is not fooling herself nor the supervisor nor the children. If such dodging must be resorted to when he comes, of course, the teacher will be under a tension and strain. If careful plans are made for the daily work, for recitation and for seat, and if the plans are faithfully followed out, the teacher has forestalled all faultfinding. Instead of faultfinding, the careful planning and the faithful carrying out of the plan will evoke and will be sure to receive praise and commendation, and will thus start kindly thoughts and pleasant expectations from his visit.

The teacher who thus thoughtfully notes her difficulties daily just as they occur and refers them to the supervisor, who adapts his suggestions to her needs, who reports her own successes as well as her failures, who plans her work and works her plan, determined to teach every lesson as if it were to be taught under the observation of the supervisor, will be sure to enjoy her work most when the supervisor comes to render an opinion; she will be sure of approval of the excellences of her work. From that experience she will be able to judge more correctly and confidently on days when he is not present. That surely will result in a substantial increase in joy in her work. Thus diffidence, fear, discomfort, or even dread of the supervisor's visit, by determined and conscientious effort may be turned into enjoyment and pleasure and into the largest professional gain.

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VII

SOME FACTS AND THEORIES ABOUT READING

I

There was a time when men had very little to read. The earliest man probably read marks in the sand. Later, he chipped marks, or crude letters and symbols, into a flat stone with a flint or bronze axe. Later still, he wrote on the bark of trees. This was because it was easier to chip bark than to chip stones, and because bark could be carried about more easily than either sand or stones. Our word, "book," by the way, comes from, or rather is the same originally as, the word "beech." Beech bark was seen to be well adapted for writing.

Later, our ancestor man found that other things were fitted for this same intelligent purpose. When he killed and skinned his sheep, he kept the thin lining skin for a tablet. This was even better than the beech, for it was lighter and could be folded. We do not longer use the parchment for writing, because we can not afford, in these days of varying and soaring prices, to kill a sheep whenever we have anything to write. Perhaps if we did this, we should write a great deal less and, incidentally, a great deal better. But we still can console ourselves with the fact that, when our colleges give out their degrees, even to this day, they write the testimony thereof on parchment. This is rather a genuinely beautiful tribute, if we but stop to consider it, to the days when learning was not a matter of slap-dash skimming of textbooks, getting from a dozen what would not fill one; but was a task of putting into one carefully compiled parchment what was gleaned from several dozen books, and that perhaps in considerably more time than it now takes a youth to go thru college.

Our modern, even hastily and badly written books,

together with all the good ones, have an ancestory behind them which not only solicits but commands our respect. The wise man likes to respect all books as he likes to respect all men. Even the bad ones are the wrecks of what might have been good ones. As the sight of the hulk of some old, unseaworthy ship sets our thoughts and our imaginations to working on ideas that are valuable at least, so even any worthless thing in the shape of a book may be valuable as it suggests what might have been or what ought to be. How fine is the sight and consideration of those good books which have weathered the storm and have made their safe voyage down the ages. The collector of old books is one of the few cranks who should thoroly command respect. A man may collect old coins till he has a bin full; but old coins merely represent a dead commerce and a haggling after bargains. Old books suggest men and their lives. A man can not put his soul into a coin; but he can put it into a book. So, any collection of old books forms a sort of Valhalla, a palace of immortalities.

II

George Brandes says in one of his delightful essays, entitled *On Reading*, that out of a hundred persons able to read, ninety generally read nothing but newspapers. And he styles this a species of reading that demands no attention or exertion. Yet some of us find it twice as hard to read the newspapers systematically as to read books. Aside from the personal fact, I am of the opinion that more people read books systematically than Mr. Brandes supposes. Even if the figures are at all as he imagines them to be, it might seem that, in addressing himself to the ten per cent thruout the rest of his essay, he falls a bit short of the writer's duty in not calling the other ninety to account.

But be the above reckoning right or wrong, there is, after all, something to be said in favor of newspaper reading. We must read newspapers, just as we must not neglect listening to every-day conversation. The newspaper rep-

resents conversation as books might be said to stand for oratory. One chatters on; the other declaims. Even the chatter may help us a great deal, if it be on a subject that interests us and is profitable in supplying us with a knowledge we do not already possess or can not otherwise obtain. To replace Mr. Brandes' statement with this one: that ninety per cent of the people read newspapers, might be more like representing the facts, as well as giving us a little encouragement. There are many college men who never take the time to look at newspapers except during the sporting season. Many people have grown up without caring half so much for newspaper accounts as for stories in books. And perhaps most children have read a hundred and fifty books before they see the necessity of reading the newspapers regularly.

III

There are old and new ideas concerning reading. We can hardly consider the subject of reading without noting that the reading done by the mass of people who draw books from the public libraries is of a sort different from the reading done at the beginning or at the middle of the last century. We have seen little George bring home many a book of which grandma did not wholly approve. And the disapproval has come not so much from the fact that the book was a bad book, as from the fact that grandma was not sure that it was a good one. In other words, she did not know anything about the book, because it was copyrighted long after she had her last pair of spectacles fitted. She may have had her spectacles fitted within the last two years; books may be new and old within that time, nowadays.

The whole reading proposition which our parents and our grandparents faced was different from the one which we face and which our children will face. Publishing conditions partly explain this. But aside from this, it may be said that we go about our reading differently. Libraries enable us so to do. Besides we will it to some extent.

The old and the new ideas are easy to compare. We have heard that there is no reading like the Bible. The person who has not had this said to him has mist the advantages of a correct, old-fashioned bringing-up. The persons who first said this and the persons who say it today are right. There is no reading like the Bible. But the same may be said of other books. It is said of Dante. It is said of Bunyan. It is said of Milton. It may be added that there is nothing like Mr. Kipling's poetry. These are all things which have been attempted once and have been successful. Probably in each of the cases cited, even including the Bible, the original will not again be closely imitated—can not be.

The old idea about reading was that such books as the Bible, Dante, Milton were the kind you should bring up children upon. The idea was all right to a certain extent. If the children could stand it, so much the better for them. It made them Jonathan Edwardses and Lincolns. At any rate, it made them greater than they would have been without their classic knowledge. Get a knowledge of the classics first! This is what the old theory of reading insisted upon.

The newer theory about reading is in line with the modern method of education generally, especially as concerns children. It is not a view that has been made up by thoughtless radicals, nor has it had a mushroom growth. Our part seems to be rather to recognize that this newer general view does exist than to stop to challenge its right to exist; because, while we are in the act of questioning, it is strengthening itself. Today the wise parent and the wise teacher let the children begin their education by considering the things that interest them. So in their reading, we have got to the point where we let them choose largely for themselves, provided we see that the reading is not bad reading. And the result seems to be that they read! Carried to its logical extreme, the newer theory concerning reading says, "Do not start the children in on the classics; let them set to reading books written for boys and girls

now living. There is some chance that this may prepare the way for an appreciation of the great writers of the past."

A wail goes up from the old school, "The classics will then die out."

"What will make them die out?" we ask politely enough.

"Neglect."

"Then let them die."

We say this with such apparently unwarranted boldness, because we may be sure that the classics will not die out from neglect. The classics will not be neglected—and this not because they ought not to be, but because they can not be. The fact that a lot of youngsters are no longer ploughing thru translations of Dante does not mean that thoughtful men are setting Dante aside. The fact that the average schoolboy draws out of the library books that are not directly related to the Ptolemaic theory, or even the Copernican, does not show that these theories will not bear studying in their place. The point is this: Milton's *Paradise Lost* has its place; but the newer theory of reading will not admit that its place is in the schoolboy's book-bag. The up-to-date ideas about reading are not calculated to destroy the classics, but merely to prove them, that they may be found worthy. The man who takes his little boy to the river and throws him in, does not do so because he is tired of his little boy. He does it in order to teach him to swim. And generally the little boy swims.

IV

How shall we read? It may be claimed, to enjoy. Even for classroom and professional purposes, it may be argued, few persons read because they want to learn. A few pedants claim that they read from an interest in learning. But the fact of the matter is that they have come to the point where reading is merely their liveliest form of recreation. They enjoy learning.

"But what am I to enjoy?" asks the average person.

Not long ago, I went into the home of a certain business man in an Ohio town. On the table in the living-room I saw the lectures of Robert G. Ingersoll.

"You don't mean Ingersoll, the agnostic!"

"Yes. By the way, he was something of the sort, wasn't he? I had forgotten that. I was only remembering that he spoke and wrote about the clearest and purest English prose of his time."

But this is why my friend was reading Ingersoll. He happened to be taking an interest in investigating examples of good prose. He was a lawyer—thought it might not hurt him in his professional work. He said he was enjoying it. Judging from the interest and avidity with which he turned to certain charmed passages, I was tempted to believe him. He said he did not care for some of Ingersoll's ideas. That was a minor matter.

Yes, let us read to enjoy. Let us choose the subject which happens at any special time to interest us, and follow it out. Let us go to the library and draw out the books which treat of it. Follow trails that seem to promise interest. Some will be blind trails; and we shall come to an end sooner that we had expected. Others will open up vistas that will lead to spots which we had only dreamed of and had considered inaccessible. When we have exhausted one subject, or our interest in it, let us try another.

The whole thing to remember is that when we come across a subject that interests us, we are to follow it up. We are to go a little way in search of a wider and deeper knowledge of it. The following up of special stimulations is the secret of profitable reading, as it is the secret of life. The special stimulation and interest in reading about a certain subject may last two days, a week, maybe two months. We are to get a corner of our head full of it. Time will go by. Perhaps one day, in conversation with a friend, or in a company, a subject will be introduced upon which our once favorite topic directly bears. And we shall speak out. Our friends will look at us in wonder, and will defer to our opinion. On one topic at least we shall have appeared to be educated. The man of large education is simply the man who has taken the trouble to inform himself on a number of small points.

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VIII

DISCUSSIONS

A REVOLUTION IN SCIENCE[1]

At a meeting of the Royal Society on Thursday, November 6th, the Astronomer Royal announced the verification of a prediction preeminent among the daring prophecies of science. The assembly was worthy of the occasion—the hall crowded with leaders of scientific thought, the president, Sir Joseph Thomson, and in the dim background the picture of Newton with its age-long welcome to those

"Voyaging thru strange seas of thought, alone."

The contrast between the fact announced and the vast issues depending on it heightened the romance.

The mere fact was one of childish simplicity. Professor Einstein had calculated that rays of light passing in the neighborhood of the sun from the stars behind it should be almost imperceptibly deflected by a gravitational attraction to the sun. The result of this deflection would be that stars whose apparent positions are in the neighborhood of the sun (tho, of course, almost infinitely more distant from us) should appear as slightly displaced out of their proper positions away from the centre of the sun. In general such stars can not be observed, because the sun's light overpowers them. We have, therefore, to wait for an opportunity of seeing the background of sky immediately surrounding the sun. Such an occasion is offered by an eclipse when the moon cuts off the sun's light and luckily enough is only just big enough for the job, so that it leaves the surrounding sky open for our inspection. The method of observation is to photograph that portion of the heavens so as to obtain a plate containing the moon in the centre blotting out the sun behind it, and also containing as much

[1] From *The Nation* (London), November 15, 1919.

of the sky with its stars as can be got into a plate suitable for measurements of astronomical precision. The configuration of the stars on the plate can now be compared with their known configuration as observed at night when there is no sun in the foreground. In this way by the exercise of almost inconceivable skill in delicacy of observation and in the elimination and estimation of small errors, the minute displacements (if any) of the stars due to the presence of the sun can be detected.

An exceptionally favorable eclipse occurred in the summer of this year, and two English expeditions were sent out, one to Sobral on the northern coast of Brazil and the other to Principe, an island off the West African coast. The African expedition had ill fortune. For nature, with majestic indifference to petty human curiosity, allowed a light cloud at the critical moment partially to veil the sky, so that only two stars appeared on the plate. Luckily the Brazilian expedition was more successful and obtained seven fine plates with as many as eight stars on them. Nothing less than a theory of the universe depended on the examination of these few photographs. Antecedently, any one of three results appeared to be possible. There might be no apparent displacement of the stars. Such a result would be the outcome of orthodox scientific theory. There might be an average displacement thru 0.75″ (seconds of angular distance). This would indicate an interesting action of gravitation on light which is deducible from a theory which Newton himself had indicated as a possibility. Lastly, there is Einstein's prediction. According to him the deflection should average 1.75″.

The Astronomer Royal announced that in his judgment, after making all necessary corrections and allowances, the observed average deflection was about 1.9″, with a margin for uncertainty. The Sobral plates by themselves gave 1.98″ and the Principe plates 1.62″.

This is not the only triumph for Einstein's theory. He had previously explained by it certain peculiarities in the orbit of the planet Mercury which had defied previous

investigators. On the other hand there has been one failure. The theory demands that in certain circumstances there should be a minute observable displacement in lines of the solar spectrum. This result has been looked for and not observed. But further confirmation of a difficult observation is desirable.

Einstein's theory can be summarily stated as being a modification of the Newtonian law of gravitation, a modification quantitatively very minute. It also involves the extension of the gravitational effect to light. Now, if the theory were merely this, it would indeed be of prime scientific importance; but it would not involve anything very revolutionary. Newton himself contemplated as possible both clauses of this adjustment of his law.

The absorbing interest of Einstein's investigations rests on the fact that they depend on adjusting the law of gravitation so as to make it square with the modern doctrine of relativity, of which Einstein himself is one main originator. There are yet other experimental grounds for believing in this doctrine, apart from the law of gravitation which Einstein has deduced from it, and many people who accept it have hitherto rejected this particular deduction. These further grounds are connected with the failure, either by optical or by other electro-magnetic methods, to detect evidence of the earth's motion thru the ether. The theory of relativity is the product of mathematicians working from electrical data; most physicists have hitherto looked on it coldly. But after its astounding run of luck in the way of experimental verification, it has got to be taken seriously.

No one who knows the theory will feel inclined to blame the physicists for shying at it. Fantastic consequences flow from it, consequences quite inconsistent with the traditional philosophy of science, which is in the main the legacy of the Aristotelian domination of the Middle Ages. In those times men took refuge from a disorganized world in a certain trim tidiness of thought. Accordingly, when modern science started on its career in the seventeenth

century it took over the concept of a material universe adventuring thru a space and a time which would be otherwise empty and eventless. Science has persistently endeavored to explain any observed happening in terms of the fact that at a certain time certain material is in one place and is going somewhere else. The great mathematical philosophers, Descartes and Leibnitz, struck a note of warning as regards space, and long ago science has nominally adopted from philosophy the doctrine of the relativity of space. This means that space is only a way of expressing connections between the materials which are nominally said to be in space. Accordingly, there can not be first space and then the things to put in it, any more than there can be first the grin and then the cat to fit on to it. This doctrine of the relativity of space reduces all statements about configurations and motions of matter in space to statements about relations and changes of relations between various bits of stuff. But science has never taken this conclusion very seriously, and has been content to rest on the fact that, since in practise it is impossible to detect absolute motions, only relative motions enter into its reasonings and observations.

The modern theory extends the doctrine of relativity to time. For its time is nothing else than a certain interconnection between the events which are said to be in time. But the doctrine goes further. Einstein laid down the principle that the measurement of time is only achieved by following the life-history of some recognizable entity in the universe, such as our earth for example. Accordingly, each such entity has its own private time, and the inhabitants of the earth who adopt earth-time only achieve a public time for the universe by judgments founded on their system of intercommunication with the rest of the universe. Furthermore, the public time for earth inhabitants will differ from the public time of other beings on other bodies in diverse circumstances.

Experimental evidence suggests that, however your fundamental time-giving body is comporting itself, the

velocity of light will appear to you to be the same. An estimate of this velocity should be the major premise in every argument as to quantitative effects; for it is the one fundamental measurement on which all beings thruout nature can hope to agree. It follows from this assumption that measurements of space and measurements of time are interconnected. Furthermore, beings thruout the universe will not even agree as to their judgments of simultaneity. For Jones, on the earth, event A happened before event B; while B preceded A for Ariel on a comet. Such divergences will be small and quite inappreciable for ordinary observation. And yet, make them as small as you will, they must necessitate a theory of things which is destructive of prevalent scientific philosophy.

The shocking character of these affronts to commonsense arises, in the opinion of the writer, from the failure of the revolutionaries to be radical enough. For example, some of Einstein's conclusions as to gravitation have been exprest in terms of paradoxical properties of space such as distortion and curvature. This is a mode of expression very useful to mathematicians. But on the relativistic theory the very concept of a unique three-dimensional space must be abandoned. Imagine yourself in the cabin of a steamer on a smooth day. You observe a point on the floor. This is for you a fixt point. The man in the anchored lightship which the steamer passes would judge that you are observing the successive events along a track of points, and the man in the moon would increase the complexity of the observed *locus*. If relativity be accepted, a point in a timeless space is simply the aggregate of a string of ideally small events which are to be observed under certain circumstances. Accordingly, the circumstances of observation must determine the meaning of the space that you are talking about. If you ignore these consequences of your theory, affronting paradoxes inevitably arise.

Again, it is clearly seen that a materialistic ether—that eminent Victorian—must go. But matter as ordinarily understood must go with it. The objections to the ether

are equally objections to the current concept of matter. The situation demands a thoro-going reconstruction of the principles of natural knowledge. The conditions to be satisfied are on the one hand an admission of the new outlook and on the other hand an interpretation which preserves a meaning for those well-attested concepts which have proved their value for the expression of the facts of nature.

In short, Berkeley has been avenged, and the revolutionaries have stormed the last stronghold of Aristotelian scholasticism.

A. N. WHITEHEAD

FINANCING HIGH SCHOOL ORGANIZATIONS

The question of financing high school organizations is one in which every high school principal and teacher should be vitally interested. It is impossible to carry on outside activities without some financing. The discussion in this article will deal with three phases of the subject: First, how shall the different high school organizations be financed; second, what shall be done with the surplus money left over at the end of the year, and third, who shall take care of the funds.

In answer to the first question, we find that various methods are used in different high schools for raising funds to carry on their outside activities.

The publications, including the *Annual* and the weekly or monthly paper can very nicely be made to pay for themselves by means of the subscriptions and advertising. Some schools prefer to have no advertising in their papers, but this generally means that they can not put them out oftener than once a month. However, most of the larger schools prefer to use the advertising and publish the paper weekly. Frankly, I see no harm in placing advertising in the school paper. Rather I think it has a socializing influence, which after all is one of the principal motives in all outside school activities. The merchants whose advertising appears in the school paper, are much more

interested in the high school after reading their advertisements. It also aids materially in the financing.

What is true with the paper in regard to advertising, is true with the *Annual.* There are three sources from which to finance the *Annual:* the first is from the subscriptions; second, the advertising, and third, by requiring each person or group whose picture appears in the *Annual* to pay for that cut himself or themselves. An efficient student manager must be chosen to look after the financial end of the *Annual.* In one of our Kansas towns it was a custom some years ago to hold dances in the town public halls in order to help finance the *High School Annual.* This plan has now been discontinued. On the whole, the *Annual* if properly managed can be made to pay for itself and often have a balance, by the three sources suggested above.

For other organizations, such as the Y. M. C. A. and the Y. W. C. A. and also the Good Times Club, fees may be required. However, these organizations can often raise goodly amounts by selling tickets for a movie on the percentage plan. This is not only profitable financially, but team work is developed and again the parents are brought into close touch with the school.

The finances of the dramatic clubs are generally taken care of thru the paid admissions to the plays, as are the debating clubs in charging a small admission for the competitive debates, generally between high schools of different towns.

The finances of the athletics are generally taken care of thru the season and single admission tickets sold for the games. These tickets should by all means be sold to outsiders. This again causes them to have a greater interest in the school and is a socializing agency.

The equipment such as suits and balls should be purchased either by the Athletic Association or by the school board just the same as any gymnastic apparatus. As a rule, however, most school boards feel that athletics should be made to support themselves, and, therefore, all expenses should be taken care of by the Athletic Association. The

money received from tickets should be used to defray expenses of visiting teams.

Just a sufficient amount to cover expenses should be charged for tickets or asked as fees. The aggregate of money required for fees and tickets amounts to quite a little, and we can teach the pupil economy by making the price as low as possible.

Various means are used to raise sufficient amounts to take care of the different expenses of the classes. In some high schools a regular fee is charged for each member in the class; we will say each senior is required to pay at least two dollars as his annual fee to take care of his share of the class expenses for parties, and the like. I understand that in a certain second-class town in Kansas, no diploma will be issued to a senior even tho he has made a passing grade in his subjects unless the two dollar fee is paid.

Personally, I like the plan of special assessments to carry on the class activities, rather than the regular fee. I believe the latter plan is more democratic. Suppose the senior class is giving a party and the only expense is for the "eats." Let a committee be appointed by the president to look after this phase of the party. This committee will determine the amount per member, necessary to purchase the "eats" and an assessment will be levied upon those members only who desire to attend. If the right kind of interest is created, the majority of the class will attend. However, it is optional with them, and I believe the party will mean more to them than if they were more or less forced to attend since they had paid their two dollar fee.

Many high schools have lecture and entertainment courses. This arrangement helps to make the high school a great social center, as it should be. These courses are financed by the students selling a certain number of tickets to guarantee the cost of the attractions.

The parent-teacher clubs can be easily financed by a monthly or yearly fee being required of all members. Generally, the Board of Education will pay for the refreshments, or at least help in defraying the expenses.

In one high school in one of our northern states, an activity is organized which has for its purpose primarily, to teach the children to save money. In order to join the club, each child must agree to place in a local bank, a certain amount of money each week or month. This money is to draw interest much after the fashion of our Mutual Loan Associations. The sum required to be deposited each week or month is very small. This is a fine plan. There is a social impulse to do things when one is a member of a club, which that person would not do if he were not a member. This was illustrated during the war when thrift stamp clubs were organized. The child is not only taught to save by the above plan, but also becomes familiar with the use of the bank.

The second phase of our subject deals with what should be done with the surplus money left each year in the different organizations. It can remain to the credit of the different organizations, or it can all be pooled and spent on some valuable gift for the high school. In some schools, the surplus money from the *Annual* is left to be used by the next year's *Annual* staff. One evil in this plan is, that there might be a temptation for the next year's business portion of the staff to "let down" in the work of securing advertising, knowing that they already have a fund with which to work. In some high schools, it is customary to use the surplus money from the senior play to buy a gift for the high school and this then is distinctly a senior gift.

The answer to the third query, who shall handle the funds, seems very easy at first sight. The majority would say, "The treasurer of each organization is the proper person to handle the money for that organization." This plan has been carried out for years, but a new plan is being developed in our larger high schools.

Everyone must admit that very loose business principles have generally governed the financing of our high school organizations in the past. Some students have been allowed to handle high school organization funds, whom their own fathers would not trust with handling funds of any kind.

The money raised, has been turned over to the various treasurers without any check as to the amount they have, nor whether they use the money honestly or not. The new plan does not indicate that the treasurers as a rule are dishonest. The majority of them are honest. The new plan is simply based on sound business principles and if for no other reason, should be considered.

It is known as the school-auditorship or financial manager plan. A member of the faculty, preferably a man, since he has to make so many trips to the bank, is appointed by the principal to act as financial manager of the high school. At the opening of school during one of the first assemblies, he should outline the financial plans for the year. Each activity is to have its treasurer and the raising of all money by or for that activity is directly in his hands. That in itself makes his office an important and responsible one. When he has collected the money, he takes it to the school bank; that is, the office or room of the financial manager and deposits it with him. The treasurer is then released of the responsibility of the money, and the financial manager at once becomes responsible for it. The treasurer is given a receipt by the financial manager, which he makes out in duplicate, keeping one for himself. On this receipt will be the date, the name of the activity represented, the amount received, the name of the treasurer and the signature of the financial manager. The duplicate kept by the financial manager should then be placed in a pigeon-hole, properly labeled as belonging to the activity just represented. At the close of each school day, the financial manager should deposit in a local bank, all the money received by him that day.

There are two plans of depositing the money in the bank by the financial manager. One is to open an account for each activity and deposit to the account of that individual activity. The second plan is to deposit all high school organization money in the name of the financial manager and let him keep the individual activity accounts himself.

The first method is preferable because it is a splendid check upon the financial manager. Every month he can check up with the bank, comparing his balance in each activity with theirs, and if there is any difference, the error can readily be found.

On the other hand if all the money is placed in one fund to the account of the financial manager, he might make an error in his accounts and the bank would have no way of checking it up.

Whenever any organization desires to draw from its funds, the procedure is made in the following way: Regular orders should be printed having on them the date, pay to the order of so and so, the amount, the purpose for which the money is to be used, the name of the organization, a line for the treasurer's signature and a line for the adviser's signature. A check is then written for the amount desired, and the notation is recorded in the stub portion of the check book by the financial manager. The order just received is filed away in the proper pigeon-hole. All checks issued must be signed by the financial manager, and just above his signature the name of the activity upon which the check is to be drawn, should be written.

You will see at once that requiring the activity adviser or sponsor to sign the order before it is valid, is a check upon the treasurer drawing money unbeknown to the adviser. There is not much danger of a student treasurer forging an adviser's name on the order blank, because the financial manager soon becomes acquainted with the different adviser's signatures. An adviser should always sign his own name and should never tell the treasurer to sign his name for him. Otherwise, the financial manager might think that the treasurer is obtaining money unbeknown to his adviser.

The financial manager should keep his accounts balanced daily, so that any member of an activity can find out at any time what the balance is.

A school bank might be established in the commercial department to assist the financial manager. It could

receive the money from the different activities and keep the separate accounts, but the financial business manager should be at the head of it. It would lighten his work, and at the same time, give the students who do work in the bank, an opportunity to become familiar with banking conditions. This bank could also receive the money from the members of the Savings Club, and then deposit it in the local bank to the account of the individual members.

At the end of each year or term, the financial manager makes a report to the principal or Board of Education as to the financial conditions of the high school organizations.

This financial method of taking care of the funds is also a splendid and business-like way of checking up the business managers of the high school paper and the *Annual*. The financial manager knows just how many subscriptions there are and how much advertising there is. Therefore, he knows just how much money should be turned over to him by the student business manager of the *Annual* and the high school paper. I have found that the student business managers take a certain delight in checking up with the high school financial manager, in order to let him see that everything is all right.

There has been a socializing effect in all this work. The treasurers come into touch with their respective organizations on the one hand and with the financial manager on the other.

When one considers that the amount of money raised each year thru the different activities, in some cases reaches several thousand dollars, the real value of using the above plan is seen.

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IX

REVIEWS

(*a*) **First Book in Spanish**—By J. P. WICKERSHAM CRAWFORD. The Macmillan Company, 1919. 399 p. $1.20.

(*b*) **First Spanish Book**—By LAWRENCE A. WILKINS. Henry Holt and Company, 1919. p. xv + 259. $1.24.

(*c*) **Spanish Taught in Spanish**—By C. F. MCHALE. Houghton Mifflin Company, 1919. p. viii + 136. $1.00.

(*d*) **Easy Spanish Reader**—By JOEL HATHEWAY and EDUARDO BERGÉ-SOLER. The Macmillan Company, 1919. p. xi + 386. $1.10.

All of these books are intended for school use and all have vocabularies. They are unusually free of typographical errors.

(*a*) In his *First Book in Spanish*, Dr. Crawford has made a valuable contribution to the study of this language. The forty-five lessons in the book present the elements of the language in a progressive and pedagogical manner. The lessons consist of: (1) numerous sentences exemplifying certain principles; (2) an oral exercise; (3) reading material in which those principles appear; (4) questions on the reading, for oral practise; (5) a theme based on the reading. For the most part the material forms a connected whole, thus facilitating the oral work and helping the student to think in Spanish. As there is an abundance of material all the recitation could be done in Spanish if the teacher should so desire. The volume has maps, a study on the verb and an index.

The chief features of this *First Book in Spanish* are the simplicity of presentation, the excellent choice of a practical vocabulary and the admirable sense of proportion.

(*b*) *First Spanish Book* is the first of two volumes planned for young students: the *First Book* is meant for use in the junior high school and the ordinary four-year high school. The book contains a preface, with useful hints for teachers, a chapter on pronunciation, accentuation and the like, thirty-eight lessons, 14 pages of composition, a chapter

on verbs and a vocabulary. The lessons begin with a selection of connected prose which shows certain grammatical principles which the author then explains. This is followed by questions and exercises on the lesson. The study of the subjunctive has been left, possibly, for the second volume.

The vocabulary is well chosen and practical. The information that the student will get is, for the most part, interesting. Certain statements, however, will be questioned, as for example on page 60, "In Spain the serenos call the hour during the night. They say, for example: 'Eleven o'clock sharp!' 'All is clear!' " This is very charming but no longer true.

The chapter on verbs is short but to the point. The principal parts of the verbs that are irregular are given in a systematic order.

Thruout the book are many photo-engravings, drawings and maps.

(*c*) *Spanish Taught in Spanish* contains a preface and an introduction in English, thirty lessons wholly in Spanish and a vocabulary in which the English equivalents are given. The main feature of this book is that it carries no formal study of grammar—the student is left to his own power of observation or to the corrections of the teacher.

In this introduction to the study of Spanish the student is likely to get the impression that the language is extremely easy. The introduction contains almost four hundred words that are practically identical in the two languages; with few exceptions these words do not occur again in the lessons. The lessons deal with the usual vocabulary of every day. The main principles of Spanish are introduced in these lessons which consist of statements followed by answers or questions on them.

Most of the lessons are in the present indicative. The table of verbs gives only four tenses, one of them being the perfect tense. Irregular forms are given in the vocabulary, but apparently only those forms that appear in the text. From the vocabulary the student will imagine that such

verbs, as "conseguir, merecer, obtener, pensar," and the like, are regular.

There are a few mistakes, mostly typographical errors. On page 12, line 5, the word "article" is not correct.

This little volume will be of great help to those who wish to get a rapid knowledge of the fundamentals of the language. The average teacher, however, will be prone to ask: "What is to follow these thirty lessons?"

(*d*) The authors of this *Easy Spanish Reader* have departed from the usual beaten path. Instead of giving selections from Spanish authors, or adapting short stories for classroom reading, they have written all the material themselves. The text is based on the incidents that take place between half a dozen school children and an ever present dog, for the space of one year.

The reader is divided into four parts, corresponding to the four seasons. The reading material is connected narration intermingled with the conversations of the children; it is divided into chapters at the end of which are to be found questions on the text and a few sentences for composition. In each chapter certain principles are emphasised by using heavy type wherever examples occur.

In the text the authors have included a little of everything, the school, the home and the country, thus introducing the student to an extensive and practical vocabulary. The arrangement of chapters will also serve as an excellent review of grammar or grammatical forms.

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Cardinal Principles of Secondary Education. A Report of the Commission on the Reorganization of Secondary Education appointed by the National Education Association. U. S. BUREAU OF EDUCATION, Bulletin. 1918. No. 35. 32 p.

The present Report on the Cardinal Principles of Secondary Education represents the collective opinions of a large commission that was at work on the subject for three years. It is a definite challenge to the conceptions of secondary and of liberal education that have prevailed since the subject has interested man. Discarding the an-

tiquated notions of culture, based on the humanities in the broadest sense, the Commission sets out to devise new principles which claim to be based partly on the more recent contributions of educational psychology, partly on a desire to impart to secondary education values that will be more obvious and explicit to pupils and parents. That educational psychology is a helpful guide to the determination of educational values rather than of methods of teaching is an assumption made without any proof. The second reason proceeds on the theory that the expert shall make the diagnosis on the basis of the opinion of immature pupils and inexperienced parents and allow both to prescribe the remedy, a procedure that appears to be an abdication of the functions of the expert. Because pupils leave school thru dislike of certain subjects or thru economic pressure, such subjects are to be discarded to make room either for exploratory and prevocational courses or for special vocational preparation. The first reason calls rather for a more serious examination of the qualifications and training of teachers, the second for an investigation of methods for providing more adequate opportunities for retaining in school pupils who need more financial assistance than free tuition offers.

The new objectives of secondary education as defined by the Commission are health, command of fundamental processes, worthy home-membership, vocation, citizenship, worthy use of leisure, and ethical character. Altho these objectives are not listed in order of their importance, they inevitably call up Spencer's analysis of what subjects are of most worth, and, when the Commission goes on to prescribe specialized vocational preparation for the last three years of the reorganized six-year high school, the feeling can not be resisted that the other five objectives may fare badly. The Commission is opposed to the inclusion in the curriculum of subjects that have only "deferred values," but there is no reason to suppose that for boys and girls between twelve and fifteen the objectives of home-membership, vocation and citizenship are not equally deferred.

The functions of secondary education are declared to be specializing and unifying—the first aims to make the individual effective in vocations and other fields of human endeavor; the second aims to furnish those common ideas, ideals, and modes of thought that make for cooperation, social cohesion and social solidarity. To secure the first aim the schools are to offer as wide a range of subjects as possible to test and develop the capacities and interests of pupils; in the junior sections the pupils' aptitudes are to be explored (how many of 181 major occupations of the country will be brought to the pupils' attention is not made clear) in order to enable them to determine their education and vocation, while a large number of specialized curriculums differentiated on the vocational basis will be offered in the senior sections, but the pupils "must not be permitted to neglect preparation for citizenship and worthy use of leisure." In a similar program for high schools the Federal Board for Vocational Education permits 10 to 20 per cent of the time to be given to the last-named objectives. The bare statement that "provision should be made also for those having distinctively academic interests and needs" indicates the general bias of the Commission. The unifying function is to be promoted by means of social studies, the mother-tongue and literature, and the social activities of the school conducted under specially selected directors.

The Commission in its eagerness to exorcise the elements of the old and "aristocratic" type of secondary education hastens to democratise it by directing it in the main towards industry and commerce. It is more than doubtful whether the best method of democratising education is to give the pupil in the large city greater opportunities than the pupil in the small town or rural district. Not only will this principle bring in social stratification on a vocational basis, but it will tend to differentiate educational systems according to the industrial character of a locality. There is no hope from present tendencies that the "unifying" influences will prove very strong, even with the increased

development of extra-curricular opportunities for "socialization" and "leisure occupations." Again, the pupils are to be taken into partnership to determine the course that suits them best, and, on the principle that no intellectual activity should be engaged in unless immediate results are attainable and measurable, and that no adventure be embarked upon whose goal can not be foreseen, the curriculums of the secondary school must "function" directly. The demand for efficiency borrowed from the world that deals with material things is to govern the educational process, with the result that the emotional and spiritual values in education, since they are not yet subject to tests or measurements, are relegated into the background or ruled out entirely. While insisting on the elimination of "deferred" values and on the principle of growth as a guiding factor, the Commission concentrates its proposed reorganization on the production of vocational skill in fields where the opportunities for growth are bound to be small.

The Commission in its preoccupation with its own immediate objectives has entirely ignored the developments of the past three years. More progress has been made in the field of vocational training during the war period both here and abroad than in much longer periods preceding it. For the large mass of workers the so-called vestibule courses offer the most suitable type of training, while for those in the more skilled trades the cooperative systems and the corporation schools have proved more successful than any other form of training. In both cases the individual with a good general education has been found to make the most rapid progress. This is true not merely of the artisan classes but still more true of the technical experts; everywhere the college-trained man has mastered in a short time the most intricate and the most difficult branches of military science. Further, the Commission has proceeded on the theory that the doctrine of formal discipline has been exploded, while recent studies tend to indicate that this subject is far from being as settled as it was thought to be.

The cardinal principles fail to furnish a sound basis for a liberal education in a democracy. The crying need today is not for intense specialization at the earliest possible stage; progress as well as democracy demands its postponement as late as possible, and the extension of advanced and general education. The recent reforms in England have indicated how the obstacle of economic pressure may be overcome by a wealthy community intent on offering genuine opportunities to all. Democracy can not progress if the schools hand over to it only tools and instruments narrowly specialized to do its work but unable to do its thinking, untrained to look beyond the immediate present. If the schools fail to develop intellectual habits and interests, to refine taste and cultivate judgment and appreciation, they must necessarily fail to impart that open-mindedness and breadth of vision that are more fundamental to the advancement of society today than specialized training of any kind. The facts affecting the individual well-being, health, the home, the economic and civic organization of society must necessarily find a place in the modern curriculum but they are only starting-points and not ends in themselves; they should be employed to stimulate intellectual curiosity not to dull it by restricting it to the "immediately functioning." This criticism applies of course to the high school as it is just as much as to its proposed reorganization. M. Caullery in his recent study of American universities refers to the high school as the weakest link in American system of education and speaking of the high school pupil he says, "He enters [the college] with his intellectual development but little advanced and with knowledge that is not knit together . . . And thus he arrives at the end of his high school course often with considerable gaps, even in his knowledge of English." The remedy does not lie in curriculums on current events and information on everyday commonplaces.

The terms "culture" and "liberal education" have acquired odious connotations, but Professor Dewey, whom the Commission would profess to follow, has rescued the

terms and redefined them to suit the modern needs, just as he has issued a warning against the abuse of the vocational elements in school. "Any scheme for vocational education which takes its point of departure from the industrial régime that now exists is likely to assume and to perpetuate its divisions and weaknesses and thus to become an instrument in accomplishing the feudal dogma of social predestination." Not only does the Commission miss the cultural implications of the present, and profess to consider the past negligible, but it enunciates principles that will lead to a social stratification fraught with danger for the future.

It is fortunate, perhaps, that the *Report* under discussion comes as a challenge at a time when more thinking people than ever are devoting attention to education. Professional educators may bury themselves in masses of statistics and derive therefrom educational values based on economic and psychological determination. To those who are interested in democratization of education by raising standards because of a belief in the possibilities of the youth of the nation the cardinal, principles must serve as a call to reform from within by accepting the challenge of recent developments in educational psychology. There is undoubtedly much that can be improved in the teaching of the subjects of a secondary education and that improvement can be secured neither by insisting on the inherent values of the subjects nor by avoiding them and setting up new standards, but by more thoro and insistent attention to the selection, training and status of the teacher. But there is abundant evidence that older values are beginning to receive more rather than less recognition. "Heretofore," writes General Samuel T. Ansell in discussing the lessons of the war for education in the Harvard Bulletin for February 20, "the training of the army officer was largely of a scientific and mechanical kind; hereafter it will require more of the humanities . . . . I think the mechanical education must hereafter take a less important place in the curriculum of military training and be superseded to

an appreciable extent by a study of the liberal arts, and sciences, and humanities." The momentous question in education that must be answered both by those who continue to urge the value of a general education as well as by the proponents of the cardinal principles has been so succinctly stated by Galsworthy in his recent address before the American Academy of Arts and Letters that nothing need be added to it: "I would ask what will become of our reconstruction in these days if it be informed and guided solely by the spirit of the market-place? Do trade, material prosperity, and the abundance of creature comforts guarantee that we advance towards our real goal?"

Moral Education, An Experimental Investigation. By WILLIAM J. WHITNEY. Boston: Leroy Phillips. 108 p.

Education and Social Progress. By ALEXANDER MORGAN. Longmans, Green & Company, 1916. 252 p. $1.20.

Democracy and Education. By JOHN DEWEY. The Macmillan Company, 1916. 434 p.

Between the three books included in this notice the only likeness is in the fact that education is treated in its social and moral aspects. In point of view, method of treatment and grasp of principles, they are hardly to be compared.

Mr. Whitney's hundred pages are devoted to a statistical study of the correlation between moral and religious training in the home, and deportment and scholarship in the school. In the undoubting faith that the truths of life being simple and universal and "therefore capable of exact proof," he desires to reduce to figures and curves the truth which he admits men have always known, that moral training in the home and church goes with more satisfactory conduct in school and life and results in better scholarship. His material "was obtained from a careful study of the home and school life of six hundred boys and six hundred girls in the elementary grades beginning with the last year of the primary school and including the eighth year of the grammar school." In spite of the interest which always attaches to attempts to make definite

our common beliefs, one can not help wondering why the author feels that he has improved matters when he lacks any fixt scale of values either for the moral instruction or the resultant deportment and employs only the old percentage scale of scholarship. His results show that of 205 boys of "excellent" deportment, 86 have had "excellent" religious training, 83 "good" religious training, 22 "fair," and 14 "poor," and so on. All that this means is that the children of respectable families for the most part conform to the standards of respectable society—that society propagates its own kind, but this throws not the least light upon the real problem of moral education and furnishes no basis for the moralizing generalities of the latter part of the book.

Principal Morgan's book makes no profession of either experimental exactness or profundity, but is a clear and sane presentation of the significance of education for society and of society for education. After a somewhat perfunctory treatment of the factors in social progress we have an excellent account of the possibilities of education when taken in its larger social sense, illustrated mainly by conditions and movements in England and Scotland, but not without reference to what is being done in this country and in Germany. Vocational guidance, pre-trade education continuation schools, public health, day nurseries and social centers are discust briefly, but suggestively, and a plea is made for the centralization of all agencies in any sense educational under a single administration. As a brief summary of the social aspects of the new education, the book is perhaps as satisfactory a one as we have. What one misses, however, is a clear concept of the social end itself. We are imprest with the possibilities of education as a factor in progress, but for the meaning of progress we must look elsewhere.

In *Democracy and Education* this problem of ends is central and determinative. The book is described as an introduction to the philosophy of education, but the following typically condensed passage from the preface suggests that the term is unduly moderate. "The following pages

embody an endeavor to detect and state the ideas implied in a democratic society and to apply these ideas to the problems of the enterprise of education. The discussion includes an indication of the constructive aims and methods of public education as seen from this point of view, and a critical estimate of the theories of knowing and moral development which were formulated in earlier social conditions, but which still operate, in societies nominally democratic, to hamper the adequate realization of the democratic ideal. As will appear from the book itself, the philosophy stated in this book connects the growth of democracy with the development of the experimental method in the sciences, evolutionary ideas in the biological sciences, and the industrial reorganization, and is concerned to point out the changes in subject matter and method of education indicated by these developments." Carrying out this program with generous exactness and with constant reference to his underlying philosophy, Prof. Dewey has given us no mere introductory textbook, but one of the profoundest treatises on education in the language. And altho it is concerned with principles and fundamental concepts, it is the outcome of so many years of experience and experiment that practical applications suggest themselves at every step. In spite of the abstractness and compactness of the exposition, the unity and concreteness of the thought are impressive. We are left with an almost startlingly vivid sense of the unity and inter-relations both of the aspects of the individual life and of the members of society. With the exception of Plato's *Republic* no work on education gives a stronger impression of it as a process by which life attains its greatest richness and wholeness. Its philosophy, pragmatic as it is, might, indeed, be called developmental Platonism.

The theses of the book are: that education is the process by which social groups maintain their continuous existence thru the transmission and renewal of meanings; that democracy is a progressive form of society in which, on account of the greater freedom of individuals, it is necessary

that there should be developed in them, to take the place of custom, a consciously socialized interest; that the education necessary for such a free, progressive society is one which repudiates whatever perpetuates rigidly marked-off divisions in society and life and recognizes continuity—fundamentally the continuity of mind and environment-controlling activity; and that practically this must mean that education is not to be treated as a mental preparation for life, but as experimental living, as laboratory work in life.

The measures advocated would generally be termed radical, tho radicalism based upon an appreciation of history is hardly properly so named. No definite end or fixt standard of life is recognized other than the permanent appeal to life itself. Even study must have instrumental or immediate value for life. It is absurd to urge that Latin, for instance, has value in and for itself as a study, but it is equally absurd, he recognizes (*pace* some educational experts), "to argue that unless teacher or pupil can point out some definite, assignable, future use to which it can be put, it lacks justifying value. When pupils are genuinely concerned in learning Latin, that is of itself proof that it possesses value." The only aim education can have is making possible the control of life in the interest of its intrinsic values.

Did not limitations of space forbid criticism one might be tempted to question the underlying philosophy of the book and to suggest that the educational structure involved might not necessarily imply a pragmatic basis, unless pragmatism is the only sound philosophy of progress. But even such criticism, read differently, might itself be interpreted as approval since it would imply, what is indeed the fact, that this body of educational doctrine is not a deduction from a philosophic principle, but part of the reflectively organized experience of which the pragmatic principle is the final formula.

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X

NOTES AND NEWS

Land-grant colleges

Bulletin 13, series of 1918, of the United States Bureau of Education, has the title, The Land Grant of 1862 and the Land-Grant Colleges. The report has been prepared by Benjamin F. Andrews of the Bureau with the especial purpose of explaining the disposition made by the various states of the original land grant of 1862, and of thus clearing up what is called an obscure chapter in the history of the institutions participating in it. The pamphlet contains the full texts of the Morrill Act of 1862; the Act of 1864, extending the time for accepting the grant; the Act of 1866, extending the time within which the agricultural colleges may be established; and the Act of amendment of 1883 concerning the investment of funds. The grants made to the forty-eight states and their disposition is given in detail, with a summarized tabulation of the actual conditions at hand under the Morrill Act on June 30, 1914. The Commissioner of Education in his letter of transmittal of the report to the Secretary of the Interior makes the following statement with regard to the Act and its educational value which is worthy of quotation:

"The Act of July 2, 1862, 'donating public lands to the several states and territories which may provide colleges for the benefit of agriculture and the mechanic arts,' led to the establishment of a group of higher institutions, at least one in each state, having direct relations with the Federal Government and dedicated to a common purpose. The purpose as stated in the Act was 'the promotion of the liberal and practical education of the industrial classes.' As translated in institutional practise it has meant the

professional training of men and women in agriculture, home economics, and various branches of engineering.

"In most of the fields in which these colleges now give training, however, there was not in 1862 an organized body of scientific knowledge sufficient to furnish working material for courses such as higher institutions are expected to give. Before the common purpose which has informed these colleges could be partially realized, it has been necessary by research and experimentation to develop several sciences and to organize the applications of them into scientific professional curriculums. The land-grant colleges have contributed largely to the accomplishment of these things. Their efforts have led to the establishment of several new professions, to the stimulation of new achievement in both the great industrial fields to which they minister, to the higher training of numerous young persons who could not or would not have sought it in the older channels, and to the profound modification of both the doctrine and the content of higher education thruout the country. The influence which these colleges have had on the development of American life is perhaps the most far-reaching influence that has come from any educational source in the half century since the passage of the Land-Grant Act. Taken together, these institutions represent America's most distinctive contribution to higher educational theory and practise."

Report of United States Bureau of Education The report of the United States Commissioner of Education for the year ended June 30, 1918, consists of a statement of the activities of the Bureau of Education during the period in question, and a survey along interesting lines of the progress of education in the United States and its dependencies, and in England, France, Italy, the Scandinavian countries, Russia and Germany, in the last two years.

The work of the Bureau during the year, it appears from the report, consisted largely in efforts to maintain the schools and other agencies of education as nearly as possible

at their normal efficiency under the abnormal conditions brought about by the war. The schools of the country, on the whole, suffered relatively little from such conditions. Very few were closed during the year, and there was apparently from the partial statistics gathered a larger attendance in both the elementary and the high schools than in the previous year, altho the total increase was less than normal. The Bureau actively cooperated, also, it is shown, with the various governmental agencies in various forms of war work done thru the schools, or that was of special interest to school officers, teachers and pupils. The Bureau was also engaged in its usual function of collecting information with regard to education thruout the United States.

The report notes, in detail, the growth of the Educational Survey movement, in which the Bureau has been largely called upon to participate by assigning members of its staff for the expert study of administrative problems. The effect of the war upon educational conditions forms an important part of the report, which discusses the contributions of the colleges to the government and relations established with the various governmental organizations. State boards of education or commissions, it appears, have been especially active during the last two years. In school administration one of the most significant features of progress during recent years has been the trend toward a unit of administration and support larger than the local district. The movement for industrial education, which culminated in the Smith-Hughes Act of February, 1917, providing Federal aid for vocational education came up for consideration in some of the states which had not previously acted upon it, and its provisions were accepted by the legislatures of Kentucky, Louisiana, Maryland, Rhode Island and Virginia. The report also summarizes educational conditions of the year in Porto Rico, Hawaii, the Canal Zone, the Virgin Islands and the Philippines.

A considerable space is devoted to a description, with more or less detail, of education during the year in question in the foreign countries already noted. In the case of

England, where only secondary education is considered, the statement is made that in the four years since the beginning of the war there has been an increased enrollment in the schools, accompanied with a widespread consideration of the aims and purposes of this phase of education. In France, the war, it is premised, has affected the conduct of education more than in either England or Germany. Changes brought about by the war in the position of women have made the reorganization of secondary education of girls a question of vital importance, and the new schools of various kinds that have been established for girls, commercial, industrial and technical, have led to a demand for a reform of the system of secondary education which as organized has been adapted chiefly for girls who do not prepare for any special career. In Italy, there has been in recent years a growing dissatisfaction with old forms of education, as is seen in the establishment of the so-called *scuole popolare*, the most far-reaching step taken in many years in Italian education, and in the reform of the normal schools. In the middle schools, beginning with the school year 1917–18, new courses of study and schedules, formulated by the ministerial council, went into effect. The Scandinavian countries do not seem to have been greatly affected by the war, whereas in Russia the entire system of education was uprooted by the revolution of March, 1917, and new conditions whose actual validity it is now impossible to determine were proposed. At the present time, and since the overthrow of the Kerenski régime in November, 1917, it is not at all certain that there is any education that can be remotely called a system in any part of the country. In Germany, to quote the report, the development of education during the past two years "must necessarily remain obscure until the sources of direct information are again opened up. From extracts and references here and there the educational situation does not appear to have been very happy, and, if reports may be trusted, the educational machinery so carefully built up seems to have failed at the crisis."

A much more comprehensive account of educational progress in this and all other culture countries of the world than is contained in this report, it is stated, will be given in the Biennial Survey of Education in the period 1916–18, to be published from the Bureau within the year, advance sheets of which in several instances have already been issued.

Winchester, Va., educational system

The General Educational Board has issued, under the general title Private Endowment and Public Education, a report on the use of the Handley Fund, amounting to nearly two million dollars, which, it will be remembered, was bequeathed in 1895, by John Handley to the town of Winchester, Virginia. The will, which constitutes the City of Winchester residuary legatee, prescribed that the estate should accumulate under the management of the executors for a period of twenty years before it was turned over to the City of Winchester. It is specifically stated by the will that the income arising from the bequest is to be expended "in the erection of school houses for the education of the poor." The Board of Trustees, that was presently constituted, by the interpretation of the courts was permitted to apply the fund to the maintenance as well as the building of schools, and when the period prescribed by the will had elapsed the Handley Library was built and a free public lecture course maintained. The solution of the problems connected with the educational side of the bequest was found to be much more difficult and the General Educational Board was invited by the Trustees to make an educational and occupational study of Winchester and to suggest a plan of educational development. The present pamphlet embodies this report, which is a careful survey of the social and industrial conditions of Winchester itself, the schools as they exist and their present and prospective needs.

The conclusion arrived at by the report is that, as being in accord with the provisions of the will, the wisest use the Handley Trustees can make of the funds at their disposal

is to cooperate with the people of Winchester thru their Board of Education in establishing a system of superior public schools. To carry out this procedure it is stated, as the fundamental steps, would be the necessity of arriving at a decision on the general plan, and choosing a high-class superintendent in sympathy with it. Decisions, it would appear, that are undoubtedly conservative and well-founded. The chapter on the needs of the Winchester Schools is interesting, both for its direct bearing on the problem at hand and for its formulation of the ends and aims of a progressive school system of the present day. The report recommends that in view of the best practise of such schools nothing short of a complete reconstruction of Winchester's schools will answer, if they are effectively to do the work that lies before them. It is pointed out, however, what we all know but which will bear constant iteration, that education as an art is constantly developing, and that even with a largely increased outlay, no system of public schools can be created which will suffice for all time. The suggestions, accordingly, of the report, it is stated, are meant to indicate the kind of educational organization and opportunity approved by competent contemporary thought. From this point of view, the whole report has much more than a local significance and should be widely read beyond its immediate environment.

Resources and standards of colleges of arts and sciences During the year 1914–1915, the United States Bureau of Education organized a committee made up of representatives of nine of the principal associations dealing with higher education, for the purpose of discussing the advisability of classifying the colleges and universities of the country on a national basis, and of determining the proper methods of procedure. This committee, subsequently, permanently organized itself as a committee on higher educational statistics to cooperate with the Bureau in the study of higher educational institutions, and decided to make a critical study which should show the

resources and equipment, and, as far as possible, the educational and administrative efficiency of colleges and universities. Ultimately, as representing the largest class of institutions, and the only ones not subject to the test of professional competency, the committee determined that colleges of arts and sciences should be the first object of its study. Thus the initial report of the committee, which has been issued as Bulletin 30, series of 1918, of the Bureau of Education with the title, Resources and Standards of Colleges of Arts and Sciences.

To carry out its plan a questionnaire was sent by the committee to 500 colleges to which 252 replied, representing, accordingly, 50 per cent of the whole number. Mindful of the unsuccessful results of the attempts of the Bureau in 1911 and 1912 to classify the colleges of the country on the basis of an evaluation of their bachelor's degree, the committee in its report has suggested, instead, a statement of the proper requirements, as determined by their inquiry, that should be met by a successful college.

In accordance with the statistics gathered, it is the opinion of the committee that the minimum requirements should be as follows, the order being that of the thirteen categories of the report. A college should have an annual income of at least $40,000, three-fifths of which, if it is as small as this, should be expended for salaries. It should have a productive endowment of at least $250,000. It should have as many as eleven departments of instruction, in each of which at least one teacher should devote his whole time to collegiate instruction, some of the larger departments, of course, requiring more than one instructor. It should have a faculty of at least fifteen members. If it maintains an academic or preparatory department, this should be distinct in students, faculty and discipline. To insure the fact that members of the faculty have pursued graduate study in addition to their bachelor's degree, at least one-fourth of that body should hold the degree of doctor of philosophy, and at least three-fourths the master's degree. Fifteen hours' teaching per week should be re-

garded as a maximum program. Fifteen or sixteen credit hours a week for each student, for 36 weeks a year for four years, should be the normal program of work for students. Fifteen units should be required for unconditional admission. The maximum number of conditions should not exceed two. On account of the difference in living conditions, an absolute salary standard for professors and assistant professors can not justly be set up. Recitation sections should not contain more than from twenty to thirty students, and laboratory sections not more than sixteen. At least $1,000 a year should be expended for the purchase of new books and periodicals, and a similar sum should be annually appropriated for the purchase of new equipment and apparatus for scientific laboratories. The report further contains the full tables of statistics upon which its opinions are based, and incidentally sets up in this way an interesting comparison of the resources and equipment of one-half of the colleges of the country, as was no doubt the intention of the committee in thus presenting it.

The Classics in Great Britain

As evidence of the interest taken by the British Government in the position of the ancient classics, it is announced that the Prime Minister has appointed a distinguished and very representative committee "to inquire into the position to be assigned to the classics, *i. e.*, to the language, literature and history of ancient Greece and Rome, in the educational system of the United Kindgom, and to advise as to the means by which the proper study of these subjects may be maintained and improved." The members of the committee are the following:

The Most Hon. the Marquess of Crewe, K.G. (*Chairman*).

The Very Rev. Sir George Adam Smith, M.A., D.D., LL.D., Aberdeen University.

The Rev. C. A. Alington, M.A., D.D., Eton College.

Mr. S. O. Andrew, M.A., Whitgift Grammar School, Croydon.

Miss M. D. Brock, Litt.D., Mary Datchelor School, Camberwell.

Professor the Rev. Henry J. Browne, S.J., M.A., National University of Ireland.

Professor John Burnet, LL.D., Ph.D., St. Andrews University.

Mr. T. R. Glover, M.A., St. John's College, Cambridge.

Sir Henry Hadow, M.A., D.Mus., Sheffield University.

Miss K. Jex-Blake, Girton College, Cambridge.

Professor W. P. Ker, F.B.A., M.A., D.Litt., University College, London.

Mr. J. G. Legge, Director of Education, Liverpool.

Mr. R. W. Livingstone, M.A., Corpus Christi College, Oxford.

Mr. G. A. Macmillan, D.Litt., of Messrs. Macmillan and Co.

Professor Gilbert Murray, M.A., LL.D., D.Litt., Oxford University.

Mr. Cyril Norwood, M.A., D.Litt., Marlborough College.

Professor W. Rhys Roberts, M.A., Litt.D., LL.D., Leeds University.

Mr. C. E. Robinson, B.A., Winchester College.

Professor A. N. Whitehead, Sc.D., F.R.S., Imperial College of Science and Technology.

Secretary, Mr. C. Cookson, H.M., Inspector of Schools.